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Contents.

	PAGE
PARLIAMENT AND THE HOUSING AND TOWN PLANNING BILL	279
NOTES	281
THE INFLUENCE ON ARCHITECTURE OF MODERN METHODS OF CONSTRUCTION (*CONCLUDED*)	282
LIMITATIONS	285
BERKSHIRE COUNTY OFFICES COMPETITION	285
ENGINEERING DAY AT THE IMPERIAL EXHIBITION	286
THE BASSET AND MANSEL TOMB, LLANTRITHYD CHURCH	286
THE DESIGN AND WORKING OF A MODERN DESTRUCTOR	288
MASTER BUILDERS' ASSOCIATIONS, ETC.	289
MEETINGS	290
FIFTY YEARS AGO	290
ILLUSTRATIONS:—	
CHURCH OF ST. ALFEGE, GREENWICH	290
CATHEDRAL CHURCH OF ALL SAINTS, KHARTOUM	291
PROPOSED LONDON GOODS CLEARING HOUSE	291
HALL'S ALMSHOUSES, BRADFORD-ON-AVON	292
WOOD FLOORS IN AUSTRALIA	292
LEGAL COLUMN	293
LONDON AND DISTRICT BOROUGH COUNCILS	293
PROJECTED NEW BUILDINGS IN THE PROVINCES	294
COMPETITION NEWS	294
TRADE CATALOGUES	295
BOOKS RECEIVED	295
CORRESPONDENCE:—	
REINFORCED CONCRETE	295
DOMESTIC ENGINEERING	295
GENERAL BUILDING NEWS	295
STAINED GLASS AND DECORATION	296
APPOINTMENTS	296
SANITARY AND ENGINEERING NEWS	296
MISCELLANEOUS	296
LIST OF COMPETITIONS, CONTRACTS, ETC., OPEN	298
PATENTS	300
SOME RECENT SALES	300
PRICES CURRENT	300
TENDERS	301

Illustrations.

LATE RENAISSANCE CHURCHES OF LONDON.—IX. ST. ALFEGE, GREENWICH.

CATHEDRAL CHURCH OF ALL SAINTS, KHARTOUM. MR. R. WEIR SCHULTZ, ARCHITECT.
1. EXTERIOR VIEW AND PLAN.
2 INTERIOR VIEW.

PROPOSED LONDON GOODS CLEARING HOUSE. MR. R. STEPHEN AYLING, F.R.I.B.A., ARCHITECT.

Illustrations in Text.

	PAGE
THE BASSET AND MANSEL TOMB, LLANTRITHYD CHURCH, GLAMORGAN	287
PLAN OF ST. ALFEGE, GREENWICH	290
HALL'S ALMSHOUSES, BRADFORD-ON-AVON, WILTS	292

Parliament and the Housing and Town Planning Bill.

THE debate on the two last days of August on the Housing and Town Planning Bill affords a rather characteristic example of the spirit in which practical measures of this kind are discussed in Parliament. The debate mainly turned not on the question of how much practical good, in the amelioration of dwellings and the improvement of towns, could be achieved by the Bill, but on questions of (1) party politics, (2) safeguarding of vested interests, and (3) the legal propriety of the machinery proposed. It was surely mainly party spirit which induced Mr. Burns to oppose and even ridicule clause 30, providing for a systematic quinquennial inspection and report on every dwelling house, which had been originally proposed by a member of the Opposition; unless indeed he was afraid that the opposition to the cost of this scheme might prejudice the whole Bill. The general tenor of the Bill is drastic and high-handed to a remarkable degree; why did Mr. Burns, in regard to this clause alone, suddenly turn round and become the advocate of half-measures? The rights of railway companies to remain undisturbed in the privileges they had acquired were championed with a great deal of eloquence; and the legal provision (or, as some members thought, want of provision) for appeal against the action contemplated in the Bill was sharply criticised. Lawyers, we believe, are scandalised at the Bill in this respect; but the improvement of Housing is a question of something more than legal formalities. The fact is that nothing but a very strong measure will avail to bring about a real move in the improvement of Housing and Town Planning; and the strong measure has been provided.

At the outset of the debate Sir F. Banbury attempted to knock the backbone out of the Bill by moving the rejection of Clause 1, which is as follows:—

> 1. Part III. of the Housing of the Working Classes Act, 1890 (in this part of this Act referred to as the principal Act), shall, after the commencement of this Act, extend to and take effect in every urban or rural district, or other place for which it has not been adopted, as if it had been so adopted.

To appreciate its full effect this clause must be taken in connexion with Clause 10, which provides that —

> 10. (1) If after holding a local inquiry with reference to the matter, the Local Government Board are satisfied—
>
> (*a*) As respects any rural district on the complaint of the council of the county in which the district is situate, or of the parish council or parish meeting of any parish comprised in the district, or any four inhabitant householders of the district; or (*b*) as respects any county district not being a rural district on the application of the council of the county in which the district is situated, or of four inhabitant householders of the district; or (*c*) as respects the area of any other local authority on the application of four inhabitant householders of the area;
>
> that the local authority have failed to exercise their powers under Part II. or Part III. of the principal Act in cases where those powers ought to have been exercised, the Board may declare the authority to be in default, and may make an order directing that authority, or, if the Board think fit, in any case where the authority in default is the Council of a county district, the County Council, within a time limited by the order, to carry out such works and do such other things as may be mentioned in the order for the purpose of remedying the default.

It is the four householders who were the great bugbear to the member for the City of London, and we think a larger number should have been named. But Mr. Burns's explanation, that it would free the rural district councils from the shackles of the County Councils, and that in fact "only nine of these rural district councils had been able to put the housing powers into operation owing to the restrictions imposed upon them by the County Councils," is a sufficient reply; and we have no doubt he is right in saying that "it was not a light or easy thing to get your villagers to complain about anything, and if they did complain, their request was subjected to local inquiry by the inspector of the Local Government Board, and it was not compulsory on that Board to adopt the report of their inspector." This argument is clenched by Sir C. Schwann's testimony that his experience as a member of the Rural Housing Society was that the Local Government Board had no power, at present, to enforce on the district councils the provision of cottages or the removal of insanitary conditions. It is evident, therefore, that stronger measures were necessary to set housing reform in motion.

The long discussion which was started by Mr. Cave in reference to Clause 2, taken in connexion with the First Schedule ("Provisions as to the Compulsory Acquisition of land by a Local Authority for the purposes of Part III. of the Housing of the Working Classes Act, 1890"), turned mainly on what seems to us a mistaken view in regard to the position of the Local Government Board in the matter. The complaint is that in a case of compensation for compulsory purchase the Local Government Board is to appoint an arbitrator, who is to decide after hearing objections, and the criticism by one member after another was that the Board was appointing an arbitrator in a case to which the Board would be itself one of the parties, the Board being behind the Local Authority which has obtained powers for compulsory purchase.

This is one of the points that lawyers appear to take great exception to; but surely it is a case in which we may appeal from law to commonsense. Technically, the Local Government Board might be considered as a party to the case; but surely no one seriously supposes that the Board would reason or act as an interested party; it is an independent public authority acting for the common good. An exception might be made, in a case involving a very large and important

property, for hearing the owner's case by counsel and witnesses (there is provision for such exceptional cases in Section 8 of the Schedule), but in the majority of cases of compulsory purchase the award of the arbitrator appointed by the Board would probably be practically the same as would be arrived at by a procedure in Court with counsel and witnesses, and would mean an immense saving of time and money to all concerned.

Mr. McArthur's attempt to introduce into Clause 2 a proviso exempting from an order for compulsory purchase "all land which at the date of that order has been acquired by the owners thereof for the purposes of a railway dock, canal water, or other public undertaking," raised a point worth discussion, seeing that in such cases the land would mostly have been acquired by compulsory powers in the first instance, and it might seem rather illogical to employ fresh compulsory powers to re-purchase it for another purpose. But on the whole the reasons for refusing to embody this exemption in the Bill seem to be sufficient. For practical reasons the case is not likely very often to arise, land close to railways not being usually much sought after for housing; railway companies may have acquired more land than they have any near prospect of using, and which would be more useful for another purpose; and (which is the most important point of all) a Town Planning Improvement Scheme on a large scale may even require, for its full development, a change in the run of a railway or the position of a station, and without power to insist on this the Planning Scheme might be injured or rendered nugatory.

Clause 30, which occupied two pages and a-half of the draft of the Bill under discussion, and provides for a Quinquennial Survey and report on every house in a district, was ruled out, after a long discussion initiated by Mr. Cave, by a majority of 121 to 75, the amendment to omit it, as already noted, being supported by Mr. Burns. We made a note last week in favour of his arguments, but the experience since given in a letter to the *Times* by Mr. T. C. Horsfall, who has exceptional acquaintance with the subject, suggests that more might be said in favour of the scheme than we had realised. Mr. Horsfall affirms that the system of inspection of all small dwellings which is in use in various parts of Germany has proved so satisfactory that the Prussian Government have made it an integral part of their last Housing Bill. The following is worth quoting from Mr. Horsfall's letter:—

"Inspection has been carried out more systematically and thoroughly in Hessen than anywhere else, because a central inspector was appointed by the Hessian Government, one of whose chief duties is to use every effort to get inspection carried out efficiently in every town and country place in the land. Wherever inspection is well done an immense number of causes of mischief are found, many of which are in dwellings the outsides of which give no indication of there being anything wrong within. The excellence of the work of the Hessian Central Inspector, Herr Gretzschel, causes him to be asked to give addresses on the Hessian system in many parts of Europe. Speaking in Vienna lately, he said that, though the dwellings in Hessen are, as a rule, better than those in many other parts of Germany, and Hessen is only about one-fiftieth part of the whole of Germany, some 10,800 defects had been found and dealt with in Hessian dwellings in the four years 1904 to 1907."

And in a later part of his letter Mr. Horsfall adds, in regard to the question of cost and of the number of inspectors that it is supposed would be required:—

"In Dresden, which has 136,000 dwellings and over 400,000 inhabitants, there are only twelve inspectors of dwellings. Ground-plans of all the dwellings have been made, and in future an examination of all the dwellings can easily be completed in about six months."

On this evidence we should doubt whether there are really so many difficulties in the way of universal inspection as has been represented, and whether the country has not lost something by the abandonment of the clause.

We now come to the second section of the Bill, concerned with Town Planning. The clause commencing this part of the subject (Clause 53 in the Bill as discussed, 54 in the amended edition) is so important and far-reaching that it may as well be quoted at length:—

"A town-planning scheme may be made in accordance with the provisions of this Part of the Act as respects any land which is in course of development or appears likely to be used for building purposes, with the general object of securing proper sanitary conditions, amenity, and convenience in connexion with the laying out and use of the land, and of any neighbouring lands.

(2) The Local Government Board may authorise a local authority within the meaning of this Part of this Act to prepare such a town-planning scheme with reference to any land within or in the neighbourhood of their area, if the authority satisfy the Board that there is a *primâ facie* case for making such a scheme, or may authorise a local authority to adopt, with or without any modifications, any such scheme proposed by all or any of the owners of any land with respect to which the local authority might themselves have been authorised to prepare a scheme.

(3) Where it is made to appear to the Local Government Board that a piece of land already built upon, or a piece of land not likely to be used for building purposes, is so situated with respect to any land likely to be used for building purposes that it ought to be included in any town-planning scheme made with respect to the last-mentioned land, the Board may authorise the preparation or adoption of a scheme including such piece of land as aforesaid, and providing for the demolition or alteration of any buildings thereon so far as may be necessary for carrying the scheme into effect.

(4) A town-planning scheme prepared or adopted by a local authority shall not have effect unless it is approved by the Local Government Board, and the Board may refuse to approve any scheme except with such modifications and subject to such conditions as they think fit to impose.

(5) A town-planning scheme, when approved by the Local Government Board, shall have effect as if it were enacted in this Act.

(6) A town-planning scheme may be varied or revoked by a subsequent scheme prepared or adopted and approved in accordance with this Part of this Act, and the Local Government Board, on the application of the responsible authority, or of any other person appearing to them to be interested, may by order revoke a town-planning scheme if they think that under the special circumstances of the case the scheme should be so revoked.

(7) The expression land likely to be used for building purposes shall include any land likely to be used as, or for the purpose of providing, open spaces, roads, streets, parks, pleasure or recreation grounds, or for the purpose of executing any work upon or under the land incidental to a town-planning scheme, whether in the nature of a building work or not, and the decision of the Local Government Board, whether land is likely to be used for building purposes or not, shall be final."

An absurd attempt was made to obtain the omission of the words, "The Local Government Board may authorise" in sub-section 2, apparently with the idea of diminishing that authority of the Board which many members of Parliament seem so much afraid of; but it was rightly urged by Mr. Burns that a local authority ought not to be allowed, without the sanction of a central authority, to promote a town-planning scheme which might affect other local authorities, and interfere with the rights of private owners; a conclusion which is mere common sense and common justice. There followed a second attempt to rule railway companies and their property out of the operation of the Act, which met with no more success than the first. A more important point was the amendment of Sir F. Banbury to remove from sub-section 3 the words "a piece of land already built on." He maintained that if these words were allowed to remain their effect would be to enable any local authority who fancied that they were endowed with great architectural ability practically to demolish the better part of a town. Mr. Burns argued, *per contra*, that it would be absurd if an important road improvement were to be stopped because it cut over property on which was erected a "pigstye, or a tool-shed, or the outhouse of a golf club." Both suppositions are rather extreme. But while Sir F. Banbury's dread of the demolition of "the best part of a town" by a high-handed æsthetic authority is not likely to be realised, the power to compulsorily demolish existing buildings to a considerable extent might often be of the greatest real benefit to a town, and a sacrosanct character attaching to such buildings might prevent schemes of the greatest importance being carried out. There are few towns where there are not blocks of buildings which it would be a real advantage to the town to remove; and without the power to do this effective schemes of town improvement would often be quite impossible; as Viscount Morpeth said, "without this power town-planning would be a sham." The majority of the House evidently thought the same and it is satisfactory to add that the amendment was lost by 196 to 49.

An amendment for which more might be said was that of Mr. Cave, who proposed in sub-section 7 to omit the final words—"and the decision of the Local Government Board, whether land is likely to be used for building purposes or not, shall be final." This certainly seems a rather high-handed clause; but at the same time we cannot understand Mr. Cave's special objection: "he held strongly that the decision whether land was likely to be used for building purposes ought not to be that of an interested authority, but should be that of an independent person or authority." On principle he is perfectly right, but one must again ask, why is the Local Government Board assumed to be "an interested authority"? Surely it in fact represents exactly that "independent authority" which Mr. Cave was demanding. Mr. Burns replied that the acceptance of the amendment would destroy the vital principles of the Bill—namely, economy and despatch, and the opportunity of coming to an agreement without recourse to arbitration or law at all.

In short, this is a strong Bill drawn up by a strong man, who wants something done: and when we consider how slow public improvements move in this country; how much housing improvement is required everywhere; what a field there is for improvement in the laying-out of towns, and how difficult it is to get any such improvement schemes

started, we cannot but think that the passing of this Bill would put a new life and vigour into schemes of town improvement generally. It is a somewhat despotic Bill, in comparison with the usual character of English legislation; but it has been found in other countries, before now, that there is nothing like a benevolent despotism (or even a despotism that is not benevolent) for initiating and completing public improvements.

NOTES.

The Trade Union Congress.

THE Trade Union Congress was opened at Ipswich on Monday, Mr. Shackleton, M.P., delivering the Presidential address for the second year in succession; and it is satisfactory to note that on this occasion the precedent of the past three years was followed, and the address was marked by a restraint and moderation which used to be conspicuous by its absence. The President remarked with truth that trade unionism no longer confined itself to purely trade union matters, but adopted a wider view of its sphere of action, and he expressed approval generally of the legislative action of the present Government, including the Finance Bill. His observations on the decision of the House of Lords in Conway *v.* Wade (see the *Builder*, August 7) were marked by some discrimination. He accepted that decision as in no way lessening the efficiency of the Trade Disputes Act from the trade unionists' point of view, but as rather strengthening the hands of the unions. There can be little doubt that to hold every mischief-maker or outsider within the protection of the Act would soon have resulted in the amendment of an Act which is open to serious criticism however narrow may be the interpretation placed upon it. Upon the case still pending in the House of Lords, which relates to the legality of the Parliamentary levy, the President wisely refrained from comment. He welcomed the Oxford extension of education to working men. We shall give a more detailed notice of the Congress after the close of its deliberations, but we may observe that one of the most interesting features of the opening proceedings was the observations of a Swedish delegate, a Member of the Swedish Parliament, on the Swedish strike. He stated that the capitalists had proved to have great powers of resistance, and they could not be starved out, and, although he stated other methods would have to be found for enforcing the strikers' views, he admitted that a general strike should never be embarked upon save as a last resource. The trade union leaders in this country are likely to agree with him, as they now wisely show a tendency to discourage strikes as a means of attaining their ends.

The Institute Library.

AN architect writes in regard to the Library of the Institute of Architects: "I believe if an opinion was taken on the subject of closing the library in August, it would be easily settled to keep it open." Our correspondent means, I suppose, that the immense majority of votes would be on that side. Ours certainly would; and it is a matter which ought to be seriously considered by the Institute Council. To close an important library, and one which in its special class of subject is unique in London, for a whole month, is what we should call a very antiquated policy, and often must give rise to serious inconvenience. All architects and students of architecture do not take their holidays in August; some probably go out of town or abroad in September; and it is rash to assume that in August there can be no one in town wanting the library. And nothing is more vexatious and irritating than to come to a library for a reference to a book which one wants immediately, and find the library closed. We certainly think it is time that this should be altered, and the library kept open all the year round. We may add that the hours in the evening might very well be extended.

Houses "Unfit for Inhabitation."

THE Liverpool stipendiary magistrate had recently to decide a question of some importance as to a case of houses against which a closing order had been issued in respect of the houses being "unfit for human habitation." An application was made on behalf of the owner of the property to determine the closing order, on the ground that alterations had been made in the houses at considerable expense. Dr. Hope, the Medical Officer of Health, opposed the granting of the petition on the ground (1) that the houses were overcrowded on the land, and (2) that what had been done was inadequate. What he especially feared was that the abandonment of the closing order would be taken as rendering these houses a kind of standard of what was required by the authorities, and that the standard was much too low. After some discussion, the magistrate, Mr. Kinghorn, said he could not rule that the houses were now (after the improvements) uninhabitable, but the time might come, under different conditions, when they ought to be closed; and the closing order was abandoned for the present on that understanding. The dilemma is one that may reappear from time to time, when the question lies between not pressing too hardly on a landlord, and at the same time not allowing the existing state of the property to be quoted as a minimum standard of habitable condition. The Liverpool magistrate seems to have taken the wisest course in the matter.

Smoke Prevention.

A Bulletin published by the United States Geological Survey gives the results of tests conducted on boiler plants in thirteen large cities as well as on experimental installations at St. Louis and Norfolk. The general conclusions to be drawn from the results quoted may be thus briefly summarised: Smoke prevention is quite possible—a fact demonstrated by the operation of many furnaces and stokers, where properly installed and carefully worked; no individual type of mechanical stoker is equally valuable for all kinds of coal; although hand-fired furnaces can be operated without objectionable smoke, the human element is so variable a factor that it should be entirely eliminated; the small boiler user is no longer dependent upon hand-firing, as mechanical stokers can be procured with a guarantee of high economy with reduction of labour for the fireman. As a general result of their study, covering the inspection of more than 500 steam boiler plants, the writers of the Bulletin come to the conclusion that smoke prevention is both possible and economical. The report is one of direct interest to all who are labouring for the suppression of smoke in Great Britain.

The Waste of Natural Resources.

MR. DOANE, the engineer of the American Electric Lamp Association, has recently read an interesting paper on the necessity of husbanding the natural resources of America. He divides the natural fuels into four classes, namely timber, petroleum, natural gas, and coal. He states that owing to the amount of timber used and the tremendous losses due to forest fires, the United States takes at least three times as much from the forests as their yearly growth. The question has become pressing as the price of lumber has increased 50 per cent. during the last eight years. Equal wastefulness of natural resources is shown in the consumption of petroleum, in allowing a billion cubic feet of natural gas to escape daily, and in using up the coal beds. Evidence is adduced to prove that in less than a hundred years the great coal beds of America will be exhausted. All methods, therefore, of preventing this waste should be encouraged. The recent enormous improvements in the efficiency of gas and electric lighting should appreciably diminish the consumption of fuel. These improvements have the effect, however, of seriously diminishing the receipts of electric light undertakings, owing to the old scale of charges for the light being maintained. Several new systems of charging which have come into use in America are described. They seem to us to be modifications of systems which were familiar to English electricians in the early days of electric lighting. In addition to the meter-bill a fixed sum is paid per annum for every lamp installed, and sometimes a small fixed charge for each consumer as well. These methods are more equitable than the ordinary systems of charging, but experience in this country proved that many consumers found difficulty in understanding the reasons for these complicated tariffs, and were haunted with the suspicion that they were partly paying for their neighbours' electric light.

Irrigation in Victoria.

THE early history of irrigation in the Australian State of Victoria was marked by errors of agricultural origin which led to results of rather discouraging nature. During recent years the Government have been occupied in reconstructing irrigation works designed for isolated holdings and in completing new channels so as to provide for the supply of water in a more scientific manner to all the lands within given areas. The works in progress at the present time will provide for the irrigation of some 250,000 acres, in addi tion to the lands already enjoying regular supplies, and should have the effect of adding greatly to the prosperity of the country. One satisfactory feature of the State irrigation works is that a return of 4 per cent. was made last year on the

capital expenditure. Moreover, there is reasonable hope that the works in progress will be equally successful from the financial standpoint. This aspect of the irrigation question is very important, because the further extension of the existing system depends greatly upon the possibility of avoiding the imposition of heavy burdens upon the taxpayer.

The Wiesen Viaduct, Switzerland.

AN interesting piece of masonry work now in course of completion is the viaduct over the Landwasser, a stream between Wiesen and Filisur. Designed to carry a new section of the Rhätische Bahn through the Davos-Landwasser Valley, the structure comprises five arches, one with the span of 182 ft., at the height of 300 ft. above the stream, and four 65 ft. arches at the same elevation. In order to provide for constructing the main span a steel trelliswork bridge, 3 ft. wide, was thrown across the stream and supported by steel cables anchored to the abutments. The centring for the arch is an imposing structure rising from the rocky banks of the stream. Although of smaller span than many masonry arches elsewhere, the great central arch of this viaduct is unsurpassed in respect of height. Concrete with a facing of granite has been used throughout the work, owing to the scarcity of reliable stone in the locality.

British Pavilion, St. Louis Exhibition.

THE British Pavilion at the St. Louis Exhibition, as some of our readers may remember, was designed by Messrs. Ernest George & Yeates as a reproduction of Wren's Orangery at Kensington Palace. The building, which was carried out by Messrs. Trollope and Colls & Sons, is to be retained in its position, and is to form, with some internal alterations and additions, the new quarters of the St. Louis School of Fine Arts. It is nominally the "temporary" quarters, it being the intention of the Board of Control of the Washington University ultimately to build a new Art School when the old premises have been sold; but as it seems to be expected that this intention will not be carried out before ten years at earliest, the Exhibition Pavilion will have a pretty good lease of permanence, and appears to be locally regarded as an admirable building for the purpose. That this is the only one of the Exhibition buildings which has been retained for practical use speaks well for the English architects and English contractors who respectively designed and carried it out.

Whitton Park, Hounslow.

IT appears that the negotiations for the preservation of the park as a public pleasure-ground will result in its acquisition, at a reduced price of 8,000*l.*, on the joint behalf of the Twickenham and the Heston and Isleworth district councils, subject to the demolition of the historic mansion by the vendors. The grounds, of about 44 acres, and the house have been latterly rented by a local club. The park and gardens were formed out of some cornfields on the verge of Hounslow Heath by Archibald, Earl of Hay, who in 1743 succeeded his brother as third Duke of Argyll. The Duke built the house, laid out the fish-ponds, bowling-green, orange walk, etc., and planted a great variety of exotic trees and shrubs. He raised from seed the cedar trees, including the fine avenue, some 400 yds. long, in 1724-6. After his death in 1761 the estate passed through many hands, and was ultimately bought by a Mr. Gostling, who divided it, selling the house with a large part of the grounds to Sir William Chambers, the architect, and converting the conservatory for his own occupation. Chambers altered the house and lived there for many years. He restored the Duke's observatory tower, and, as he did at Kew, erected in the grounds some temples, with one of Æsculapius, a Roman bath, together with statues, and "ruins." In the tympanum of the pediment of the tetrastyle portico was placed a bas-relief by Dere of the Titanomachia; in the grounds was Cibber's marble group—since removed to Stowe—of a Highland piper and his dog, commemorating an incident related by De Foe of the Great Plague. The *Gentleman's Magazine*, 1812, says that Chambers set up in the gardens portions of the screen from the chapel of Denmark (Somerset) House, Strand.

The Monks' Barn, Peterborough.

IT is stated that Mr. Fox, F.S.A., has offered to the Peterborough City Council the timbers of the old tithe barn, appertaining to what was once the Abbey of Medehamsted, now the Cathedral of Peterborough. The barn, which stood in Boroughbury one mile distant from the abbey, was sold ten years ago—the materials comprising timbers which it is believed were cut on the Milton estate, and three stone arched doorways. The building measured about 145 ft. by 31 ft. within, the area being divided into two low aisles and a lofty nave by timber posts, 20 ft. long and 14 in. square in section, and framing, which carried a high-pitched roof by a single span. On one side were two transepts, having large end and two side doorways, arched, and with moulded jambs. Built in, it would appear, the latter half of the XIIIth century, the barn exceeded in size the similar and later structure at Glastonbury, and almost equalled that at Bradford-on-Avon. At the time of its being dismantled the fine relic had lost the walls and roofing of the main building, but the wooden framework, constructed without iron nails, stood solidily as of old, a monumental specimen of carpentry of more than 600 years ago.

Rood Screen, St. Buryan's.

IN our issue of September 26 last year we gave a description, with one or two sketches, of the remains of the ancient rood screen in St. Buryan's Church, Cornwall, which must have been, when complete, one of the most remarkable pieces of work of the kind in the country. On re-visiting the church this year we found that the lower panels of the screen, which used to stand in front of the chancel, and the portion of the elaborately carved cornice which we had found fixed on the south side of the chancel, had disappeared. From the vague explanation of the church attendant we gathered that they had been sent away to form models for, we presume, a complete restoration of the screen. This is spirited, but at the same time rather alarming. It is a question whether the old fragments would not be more interesting and valuable left just as they were, instead of being incorporated (as we presume is the intention) with modern imitations of the old work. At all events, we hope the ancient work is not to be tampered with, or endeavours made to "restore" what is left of the colouring on it. The authorities of the church would do well to re-assure us on that point.

THE INFLUENCE ON ARCHITECTURE OF MODERN METHODS OF CONSTRUCTION.*

Nascent Architecture.

Having discussed the influences attendant on architectural development, the trend of construction, the new materials, the increasing extent to which architecture is becoming indebted to science, ground has been cleared rendering it possible to deal with the architecture which, so far as we can judge, is now being evolved. Robert Louis Stevenson, in his characteristic essay on "Some Technical Elements of Style in Literature," states that in this our English tongue there are greater subtleties in the highest form of prose than that of verse. In the latter instance, he points out, the pattern is fixed, the limitations of versification are well recognised, while in the case of prose the web or pattern itself has to be formed at one and the same time as occurs the marshalling of facts and theories and their introduction in an ordered procession best calculated to produce a logical and lucid effect.

While not many of us are likely to ascend with Stevenson to such giddy heights of sensitiveness in prose formation, it yet appears that an interesting analogy exists in connexion with our architectural work. Most past styles of building may be considered to have belonged to verse architecture. Here recognised forms of treatment, of lintel and column, of arch and pier, of vault and dome, are equivalent to the iambics, trochees, anapæsts, and other feet less frequent in occurrence, with which are formed the varying patterns of verses. We in the present age are in the position of hardly knowing what restrictions exist; ours is an architecture possessing all the freedom and possibilities of prose and yet all the obstacles present in such an indeterminate structure against the production of great artistic result.

As the historic forms of treatment are of doubtful applicability, if any real strength in modern architecture is to be achieved it must be on the basis of the logical necessities of construction. In spite, however, of the attention which is being paid by many to constructive science there is a distinct danger that, as the word "impossible" comes to be almost erased from the structural dictionary sound and logical construction will be of less frequent occurrence, for the designer will know that, no matter what he proposes, it can in some manner, bad or worse, be executed.

Here our analogy may again be taken up. Although in ordinary prose it is possible, from the purely practical standpoint, satisfactorily to express a sequence of ideas by means of a set of disjointed sentences, this is but slovenly workmanship. The precision of good prose composition, due as it is to conformity with logical rules and restrictions, appeals to everyone. All admit the value of forceful and lucid reasoning, and all to a greater or less extent feel the beauty and impressiveness of "the chime of fair words and the march of the stately period." In a similar way, although it is possible under modern conditions for construction to be carried out in any clumsy and short-sighted

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* Concluded from last week, page 265.

manner, there must yet be definite laws upon which all sound construction should necessarily be based. Once these laws are ascertained and are allowed to form the true basis of modern construction, and consequently of architecture, a sound position in both art and construction will have been attained.

Time, no doubt, will enable us better to appreciate our position and discover the general lines due to real constructive necessities to which our architecture will do well to conform. At present, however, all that we have to direct the course of our work are the old forms of architecture, many of which, used in connexion with modern construction, have but an archæological significance, and the lately evolved economic rules of structural engineering, instinct as yet with no artistic life.

Chief among these latter are those which have been found to govern the spacing of stanchions in steel construction. With loads of ordinary intensity there is a recognised spacing, from 14 ft. to 20 ft., to depart from which will usually lead to uneconomic design. This is one of the elements forming the pattern of that class of architecture in which steel occupies chief structural place. Not, however, that an absolutely fixed rule should here apply; this would savour of the lifeless rigidity of engineering science. In architecture, while the rules of construction should operate in determining the main scheme of the structure, it is the perogative of art to vary both outline and detail where desirable. Thus there may be the provision of greater height to secure proportion, a wider spacing of supporting members here, a lesser spacing there, and a hundred other modifications of the plain construction. By this means a building is made not only to fulfil, but to demonstrate its purpose, and to be of both practical and æsthetic value. As regards the spacing of reinforced concrete piers, reliable rules have yet to be evolved. Further experience will determine the question whether a wider spacing than that of steelwork is desirable. Such wider spacing may appear justified by reason of the fact that in a reinforced concrete beam a very considerable proportion of the expense comes under the head of temporary "false-work," and that the cost of this does not increase proportionately with the further strength obtained by an increase in the depth of the beam. On the other hand, however, the weight of a beam of such material is in itself a considerable item, in addition to the load it may have to carry, and beams of great span may there be found undesirable.

But these considerations of pier and stanchion spacing are, after all, purely economic. There are few constructional difficulties in the way of enormously increasing the present customary spacing, it is only the additional expense which acts as a deterrent. Thus we see that in this and other respects such restrictions as we may possess are of a much less arbitrary character than in the somewhat similar historic forms of construction—in the Greek, where the size of the architrave stones had influence in determining the inter-columniation, and in the Norman and early Gothic, where the spacing of the piers was affected by the properties of the round and the pointed arch. No matter how we approach the subject we are led to conclude that except as regards the often all-compelling consideration of cost we are likely in our future architecture to be governed by few natural restrictions. This somewhat dangerous freedom may possibly be decreased a little by such new building regulations as must shortly be introduced to modify our present antiquated codes, but it is hardly possible that the art of architecture will be benefited by any artificial restrictions of this kind.

With a lack of such strong constructional and other guiding influences as those which were responsible for the production of sincerity and strength in the historic styles, we, with the pier and panel wall treatment now being evolved, and with the enterprise evinced in the present day constructions in many directions, would yet appear to have an architectural future possessing hopeful possibilities. If this treatment—piers to carry all loads and thin walls to act merely as enclosures—in harmony as it is with the scientific methods of the day, is going to spread throughout the length and breadth of structural art it cannot but have an enormous effect on the architecture evolved. It will almost invariably be found that this type of construction is cheaper, in addition to being more scientific, than a construction relying on ordinary continuous walling, and we are in the days when financial considerations have decisive influence. In this instance there may be no occasion for regret, for it would appear that in the new pier and panel wall treatment we shall have some of the Gothic characteristics of design, and with these some of the Gothic possibilities of originality. But Gothic, it may be said, is not only a pier but also a buttress architecture. This is clearly so, and in our modern work we get both pier and buttress, but the latter disguised almost beyond recognition in the form of a simple stanchion. A buttress from the constructional standpoint is, after all, merely a contrivance provided to act counter to a thrust in order to preserve equilibrium. Either a steel stanchion or a reinforced concrete "pillar" properly designed for its purpose, and sufficiently secured at the base, is capable, by means of the tensile stresses of its material, of doing exactly the same work as is more ostentatiously affected by the buttress with its ponderous mass. Thus in our roofs we are able, if necessary, to dispense entirely with unsightly ties, and both here and in the pier spacing there are many opportunities for free and vigorous design.

In types of building where there are no hard-and-fast requirements tending to stereotyped planning it will rarely happen that the position of the piers will be in any two cases the same. As a result, instead of it being necessary for an elevation to be almost artificially evolved to stamp character upon an otherwise lifeless expanse of walling, the broad lines of treatment will be determined at once by the pier disposition, although in the exact determination of the spacing of the piers the designer will be influenced not only by considerations of practical construction, but by those of architectural design,

Despite that there are few signs at present of this pier construction being used in domestic architecture, and still less evidence that it would be welcomed by the able exponents of this our most satisfactory branch of English architecture, yet there are evidences that it may ultimately be found to be well suited for use in the larger country buildings. In this form of construction it is not only possible but necessary to emphasise in the design the main constructional features—the piers upon which the whole structure will be carried. Given, as the design of a big country house, a freedom from site limitations and a freedom in planning and arrangement encountered but rarely in other buildings, if, in addition, a form of building is adopted in which æsthetic design and logical construction can with great naturalness proceed together towards the desired goal, the result should, in capable hands, be most successful.

The bare statement that the pier architecture now being evolved is to some extent Gothic in tendency needs, however, some little qualification. Gothic it may be as regards the scientific concentration of loads on relatively small arears of support, but when we leave construction and come to the decorative side of the work our similarities become contrarieties. In appearance our modern buildings will obviously have but little in common with those of the Middle Ages. A note of verticality will no doubt be struck, although in many of the large American buildings it has been customary, by running the terra-cotta casing in continuous bands in front of the wall stanchions, to produce, at the cost of constructional sincerity, a horizontal treatment. In the design and execution of the features which make for architectural character and refinement the influence of mechanical labour and of the materials thus produced must be allowed its natural effect. It will profit us little if by means of commercial processes in terra-cotta or moulded brick we produce mouldings and ornament, alike indeed in form, but wide apart as the Poles in feeling from those whose interest lies in their having been wrought from the primeval rock at the cost of much studied thought and patient labour. In all successful efforts in design the characteristics of the materials must be allowed their legitimate influence. Where either stonework or brickwork is used we are on no fresh ground, except only probably as regards the main form of construction adopted, but when we have to deal with terra-cotta and the more modern kinds of glazed ware the old forms of decorative treatment long customary in our English architecture are no longer applicable.

It can hardly be considered a coincidence that this age of new methods and materials should synchronise with a revival of Byzantine forms of treatment. It would appear that the emphasis of a design by crisply executed mouldings and rich and elaborate carved ornament is likely to give place to a treatment more appropriate to materials in which the old forms of manual craftsmanship are no longer possible. As illustrations of the effect which can be produced by diversity of texture and colour in the walling there is little to compare with the works of the Byzantine builders.

In the manufacture of modern walling materials it is becoming customary to aim at the production of a vitrified or enamelled face able to withstand the deleterious effect of a town atmosphere, and one which, if necessary, can be cleaned down with ease. In most of the processes of manufacture the addition of any required surface colouring adds but little to the cost. It is generally admitted that in materials where pleasing variations of colour occur mouldings, if used at all, must be quiet and restrained in character. If the general colour scheme is very beautiful, the use of mouldings will but detract from the effect. It were most misdirected energy by means of carved and fluted ornament to attempt to add to the rich yet simple effect of a costly monolith of finely-coloured marble. With the increasing use of colour in our buildings it will be necessary for us to adjust our standards of architectural design, and we shall probably find it to our interest to study still further the wall surface treatment characteristic of the Byzantine style.

Mention has already been made of the ordered and regular spacing of piers and stanchions which for structural and economic reasons is very prevalent in modern buildings of the warehouse type. Such systematic treatment must have some little effect on the question of planning. For although the character of the accommodation required, the sizes, number, and disposition of the several rooms will undoubtedly have the greatest influence in determining the exact form of the plan to be adopted, yet the plan must clearly be governed by structural reasonableness. It should not be necessary in the erection of an office or trade building to resort to a constructional *tour de force* appropriate only, if at all, to the case of a concert-hall or cathedral. In addition to such regularisation of planning as may be due to influences of construction there would also appear to be another but less direct influence tending in the same direction. It is, after all, only natural that this closer connexion of science with architecture should, in due course, affect the outlook of those

responsible for the design of buildings and lead them to favour, in their modes of planning, similar regularity and presence of system as is becoming customary in the construction. We may, therefore, expect in our most modern buildings a tendency towards an ordered symmetry both in the construction, the plan, and the elevation. If, in great contradistinction to past days of formal planning, regular methods of arrangement owe their existence solely to structural necessities there will be small cause for criticism.

Treatment of Architectural Features.

Leaving the more general discussion of the subject of modern architecture, and dealing particularly with the principal architectural features, we are brought to face at the outset with the continued though gradual supersession of the arch by its early predecessor and historic rival the beam. The arch form has undoubtedly gained a position as a decorative feature from which it will not easily be dislodged. Arches of wood are continually met with, and do not appear to be viewed with disfavour even by the purists. But as a constructional arrangement the arch of voussoir blocks, from the early introduction of cast-iron, followed by wrought-iron, steel, and now reinforced concrete, has suffered a continual elbowing out. The column and beam in their modern dressing as stanchion and joists are becoming the rule throughout all constructive work. But though the same in principle, from the point of appearance the stanchion and joist have not much in common with their historic predecessors. It has been suggested that in the course of time we may cultivate ideals of proportion more in conformity with the comparative slenderness of the new construction. In support of this there is the fact that the proportion of columns has often been modified. Everyone knows what a striking difference there is in the proportion of the rude Doric columns of the Temples at Pæstum and those of the Ionic and Corinthian orders. We also find the same changing tendency, though in the reverse direction, in the way in which the towering shafts of Early Pointed Gothic attain the more sober form of Decorated piers.

In steelwork a little may be done to produce a greater appearance of stability by increasing the connexions at base and head somewhat beyond the size which engineering exigencies demand. Directly or indirectly failure in a stanchion is most likely to be due to lack of fixity at the ends, and thus anything which tends towards better connexions is good construction, though the bounds of rigid economy may perhaps be overstepped. In reinforced concrete, constructive necessity provides, in the shear or as they are sometimes termed, splay pieces, at the ends of the beam, additional material, which with judicious treatment may not only actually but in appearance provide considerable increase of strength at the junction of beam with column.

In what we term heavy engineering construction successful beam treatment appears rarely, if ever, to have been attained. In a plate girder bearing a load uniformly distributed, where the sheering stress considered to be taken by the web varies from a cipher at the centre to a maximum at the supports, it would surely seem possible, by means of the disposition of the web stiffeners, to provide some truly architectural treatment which, together with the usual increased number of plates at the centre, would not unpleasingly proclaim a constructional story to all who might have sufficient intelligence to understand. No doubt in very many respects room exists for a truly artistic treatment of these large engineering structures. Nowadays, when sculpture is again being freely used in connexion with buildings, and when symbolic figures and groups, sometimes discreetly labelled, are considered a necessary complement to our public buildings, one may ask why such sculptured symbolism is never applied to illustrate the mighty forces ever wrestling for the mastery in the girders of some viaduct or bridge. Even the inartistic man in the street could better appreciate a representation of strenuous figures striving to prevent the tearing asunder of the lower flange of a heavily-loaded girder than one of the customary Laodicean groups representing Literature, Education, or Art, which might often change places with one another without anyone being the wiser.

If for the external wall surfaces of our buildings the use of coloured tile ware became general, the exercise of restraint in the mouldings would appear to be a necessary consequence of the employment of such material. This would naturally affect the architectural treatment of door and window openings, boldness of outline in the decorative framing of such openings being superseded by variations in colour. Also, as has been previously mentioned, the customary arch treatment of openings is becoming less general. Throughout the greater portion of the most modern construction the lintel holds sway, and its function as the bearer of the superincumbent walling should by the treatment adopted be written upon the face of the building.

When the window space is considered we seem to be progressing towards two extremes. In offices and similar business premises, where light is of great value, deference is being shown on all sides to the utilitarian demand for large, plain glass surfaces. Observation of recent important office buildings will prove the truth of this statement. On the other hand, we have in domestic work a return to the attractive lead-glazing associated with pre-Georgian house architecture, also iron frames with glass in small squares are often used, and these produce by no means an unsatisfactory effect. In the form of construction in which all loads are carried by the piers, there will be no objection to increasing largely the area of window space, and thus it is to be trusted that the large, plain glass square, with its hopeless incongruity of scale with the rest of the structure is not likely to invade domestic work, and that possibly it may even be driven from its stronghold, the office building. The formation of spacious, well-proportioned windows, fitted with leaded glass, no doubt in the most costly kinds of buildings coloured and otherwise decoratively treated, may very probably be not the least pleasing of the results attendant on the development of pier and panel wall construction.

The use of a high-pitched roof has been general throughout all our national architecture, except in the case of the more monumental buildings erected in the XVIIth and XVIIIth centuries, when Italian influence was predominant, and it is of interest to consider whether perchance there are any tendencies in modern construction which may prevent the continued use of this essentially English feature. Dealing with the subject purely from the point of view of construction, it is doubtful whether the pitched roof can economically justify its existence. Certainly when steel and concrete are used, and where it is not proposed to have a roof story, it is both easier and more economical to construct a flat roof. But in our large towns it would appear that stories in the roof, necessitating, of course, a high-pitched roof, will be the general practice. Most regulations, both in this country and abroad, which operate in restricting the height of buildings have been framed with a view of providing a certain angle of light to the lower windows of buildings on the opposite side of the street. Stories in the roof are therefore allowable even although the height of the building to the eaves or parapet has reached the extreme limit permitted by law; but there is often, as in London, a limit to the number of stories and to the angle of slope of the roof. When, as no doubt will often be the case, it is desired to erect a building providing the greatest possible amount of vertical accommodation pitched roofs containing one or more stories will therefore be required, and the fashion thus set is likely to be followed in the less lofty buildings. Given that the storied roof remains customary in town architecture, it is hardly likely that it will be discarded in the country, where, since the early dawn of our English architecture, the mottled hues of cottage and mansion roof against nature's background of ever-varying green have provided for the poets and painters of all ages "material" inexhaustible in interest.

The increasing use of concrete, generally in combination with a framework of steel, has been responsible within the last twenty years for the frequent appearance of the dome in large public and commercial buildings. What in the days of plain masonry work was a difficult and costly constructional undertaking is now a matter of easy execution, and if reinforced concrete proves itself to be the wonderfully adaptable material at present believed, there are great possibilities in modern dome construction both as regards the outer enclosure of the dome and the inner lower crowned shell which æsthetically is found to be almost essential. But domes in this material are likely to be so only in name and appearance; the construction will be in principle similar to that of a rib and panel vault, of which we have an historic example in the dome of the cathedral at Florence designed by Brunelleschi.

The dome as a stately, almost voluptuous crowning feature of a large building is quite without a rival, but its use up to the present has been solely for reasons of effect. Now that the cost of dome construction has been so materially reduced it is for the future to prove whether, in addition to forming an imposing external architectural feature, a dome can be utilised to furnish space adaptable to the requirements of modern life. At present, however, this is but an interesting speculation. But the greater ease and cheapness of construction is a fact which cannot fail to have influence and tend towards the increased use of the dome in modern architecture.

Internal Decoration.

When we consider internal work we have cause to be appreciative of the opportunities due to the existence of so many beautiful and diverse materials. Methods of transport have been so improved that we have at our doors marbles as wonderful in profusion and display as those with which the first crowned of the Imperial Cæsars almost justified his extravagant boast. Also year by year modes of manufacture are extended and improved by which we are coming to possess materials in glazed and enamelled ware of any required shade or colour. Art metalwork in iron, copper, pewter, bronze, and other alloys is reaching a high level of excellence, and the use of oak and other hardwoods in simple and honest forms is becoming general throughout the interior of our buildings. Although often no new substances are used, yet the mode of treatment, particularly the juxtaposition of materials so typical of modern art, is of an enlivening freshness.

Oak for mantels and panelling in combination with beaten copper often produces very effective results, and also, more particularly in furniture, we see oak and pewter successfully used together. When to these materials are added enamelled tiles of various shades for fireplaces, and the friezes —or possibly the walls themselves—pictorially adorned with the aid of the stencil, we arrive at an ultra-modern form of treatment, often carried to extremes by those whose aspirations in the sphere of art have far outstripped their ability as designers. But in the hands of competent artists, the "style" as it may almost be termed, is capable of being put to very satisfactory use.

In the construction the keynote is one of simplicity and, throughout the best work, of accompanying sincerity and strength.

It is evident that modes of interior treatment do not depend upon tradition to the same extent as does exterior design. Closely influenced by past styles as in our external architecture we, in the interior of our buildings, are, however, able to voice to some little extent the spirit of the present day. It is of interest to note that one of the chief demands of treatment in colour—restraint in the use of mouldings and carved ornament—though yet barely recognised in exterior work, even where noticeable colour contrasts exist, receives practical acceptance in the interiors of most modern buildings. To institute a comparison between, for example, an elaborate Jacobean oak-panelled room and one oak panelled also, but executed in accordance with modern taste, is to realise the striking departures which have taken place in internal design. Instead of a semi-barbaric display of carving, framed in intricacies of moulded lines, features which it was considered desirable to reproduce in the new work of fifty years ago, we have a more refined though possibly less vigorous style in which character is produced by variations of material and colour.

In addition, however, to these XXth-century methods of treatment we get in the interiors of our large public buildings, rich forms of decoration in coloured marble, which, based on South European standards, and thus in no way modern, are yet fresh to us here in England. It is only of comparative recent date that these materials have been available for our use. The cost of transport was for long practically prohibitive. It is interesting to note that with all this beautiful display of coloured marbles in our important public and office buildings, and with very effective modern forms of wood, tile, and metal design in our best domestic architecture, any treatment partaking of the characteristics of both these styles is almost non-existent. Marble as used in the ornate architecture of Rome and Byzantium is indeed irreconcilable with the restrained and almost, as a contrast, ascetic treatment met with in much of modern interior domestic work. But is this the only way in which marble can successfully be applied? The buildings of the Greeks as first erected, with mouldings and sculpture richly stained and coloured, showed a form of marble decoration which, with our knowledge of Grecian art in other directions, we cannot but believe to have been excellent in effect. But as these buildings stand to-day, in pure grey-white outline, we see another, unstudied, purer, and more simple, form of marble treatment, which is the admiration of the world. Thus, although it is customary in our modern buildings to use marble in a rich, almost ostentatious, manner, it scarcely follows that this treatment is demanded by the material, nor that it may not be possible to use marble in simple forms in connexion with materials such as bronze or copper which are customary in our more modern forms of decoration.

Progress in internal decorative art has been most noticeable within the last quarter of a century. When the general public comes to realise that the work of to-day is not inferior to much of that which has gone before then perhaps there will be an end of that fashionable practice of dressing up rooms in different historic styles of decoration, so that we thus get the Elizabethan room, the Adams room, the Louis Seize room, and so on. Fortunately, up to the present we have been spared the Mid-Victorian room. But with mere fashion at the helm shall we be for ever thus immune? All this treatment is a mere masquerade, and possesses no more title to the term architecture than the work of the stage carpenter.

The Art of To-day and To-morrow.

Doubtless to many this optimistic view with regard to the future of architecture and the influence of our modern methods of construction will appear unwarranted. To such it is suggested that they should compare the state of the arts and handicrafts to-day with their position a little more than sixty years ago, prior to the pre-Raphaelite movement. In music, and possibly in literature, arts not expressible in form or line, there has indeed been a retrogression—the giants at any rate have left vacant places. But in no other direction has this confession to be made. On the contrary, we are able to record striking advances. Compare our best modern country houses with the dubious Gothic erections which were coming into vogue in the middle of the last century. Compare the arts of design in, for instance, the numerous textile industries. Compare the paintings. Compare, if any sort of comparison is indeed possible, the sculpture. In every case we see a great uplifting of the standards of English art, a process which still continues. Witness the progress made even in the last twenty years. Thus, when we see art evincing on all sides a vigour and freshness scarcely paralleled since the days of the Renaissance, may it not be possible that, as in the beginnings of many of the historic styles, architecture will welcome concurrent changes in construction with the cry of "Vita Nuova"?

LIMITATIONS.

FROM A CORRESPONDENT.

IT is a good saying which counsels us not to show the boundaries of our knowledge by overstepping them. The man of reserve commands a respect because there is a sort of presumption, owing to his being more or less inscrutable, that there is nothing that he does not know. The absolute silence of stock and stone before which idolaters bow is the very thing which accords with the notion of omniscience in the minds of the worshippers. It is characteristic of human nature to reverence reserve as abiding only in the unconditioned, the illimitable. Human beings, on the contrary, are necessarily conditioned not only by their environment, but by their own action, and even by their own utterances, and therefore they can never be without their limitations. On the negative side there are limitations through the absence or deficiency of faculties, often not conspicuous to the mind of the individual, but which can be noted better by others, though, often enough, for obvious reasons, we do not get the benefit of their observation.

Should our activity, then, be restricted simply to that which we know and can do of ourselves? Or, on the other hand, can any one man properly assume the control of matters not absolutely within his own ken? Such questions may very properly address themselves to architects. What, in short, is and what is not within their province? The architect's function goes beyond the discharge of the heavy responsibilities which he takes upon himself, for he has, beyond the production of a building which shall meet its requirements, to answer to himself that it shall be beautiful in itself, as far as he can make it, and that it shall express its purpose.

The days are long gone by when building was mainly a matter for craftsmen who respected their own limitations; the proverbial "Jack of all trades" being then, as now, the master of none. There are now, however, far more trades connected with building than formerly, but there is often considerable overlapping. Heating engineering firms take up art metal-work, decorators exploit appliances by no means closely allied to their own business; the same firm who will supply boilers will do pavement lights, and so forth; and this tendency is found in well-nigh every trade.

With all this diversity of operation the more emphatic becomes the demand for the architect, if the public concern themselves as they should as to the means to be employed in the proper carrying out of a building.

It is the architect who bears the theme in his own mind, and in him alone resides the great unifying principle; and for its expression it behoves him to press into the service all those means which are to contribute to the working out of the idea; bringing forward the whole by attending to the parts, all in just measure; while he, in the more special exercise of his function, has moulded and shaped the building in his own mind as truly, in a sense, as does the modeller with the clay beneath his hands.

But what, on the other hand, should properly be regarded as not the architect's sphere? His prerogative in the allied arts should be maintained under much restraint. With sculpture, apart from carving, he should have nothing to do (unless he is another Michelangelo) beyond forming a general idea of scale and mapping. These ideas should be imparted to the sculptor, who should not need anything further at the hands of the architect. Much the same would apply in the case of the employment of a painter. More nearly allied to the architect's own work is that of the civil engineer. He well may be employed in collaboration with the architect in certain cases, and should always defer to the architect's opinion. In the same measure perhaps the decorator should be dependent on the architect. As regards the gardener (we do not like the designation "landscape-gardener"), there has been of late what might almost be called an invasion of his domain by the architect; almost as much an interference as it would be for the gardener to dictate to the architect what creepers should grow up his building! The latter should surely be content with wedding his building to the ground; the lay-out of the surroundings will suggest itself in a great measure, and need not be taken in hand so seriously either by the architect or the landscape-gardener as is so often the case.

What hand the architect should have in the designing of movable furniture, textile fabrics, and mere utensils is a question. Such matters are not his proper sphere; if he has a leaning to any of these he might pursue it as a hobby; but is life long enough that he should bestow his time and attention on such things beyond his own province?

BERKSHIRE COUNTY OFFICES COMPETITION.

THE award of Mr. Mervyn Macartney, the assessor in this competition, has been awaited with more than ordinary interest; nor is this surprising when we take into account the large number of architects who sent in drawings, and the difficulties which arose in connexion with the conditions. These must be fresh in the minds of most of our readers; there is therefore no need to recapitulate them here. The first premium of 100*l.* has been awarded to Messrs. Warwick & Hall, of 13, South-square, Gray's-inn; the second of 75*l.* to Mr. E. J. Shrewsbury, Clock Tower Chambers, Maidenhead; while Messrs. Wills & Anderson of 24, Bloomsbury-square, London, have obtained the third of 50*l.* The proposed site measures 93 ft. 4 in. by 64 ft., the northern or principal and shorter side fronting on The Forbury. The rights of light are unobstructed on the north and south sides, and but slightly restricted on the flanks. The several departments required, with their approximate area in feet super., were as follows:—Clerks' department, 3,005 super. ft.; education secretary's department, 3,670 super. ft.; medical officer's department, 1,025 super. ft.; county treasurer's department, 2,035 super ft.; county surveyor's department, 1,715 super. ft.; land steward's department, 825 super. ft. Two committee-rooms of not less than 600 super. ft. were to be provided, the one on the same floor as the education department; and lastly, storage accommodation for forty bicycles.

The cost of the building was not to exceed 16,000*l.*

Messrs. Warwick & Hall, the authors of the first premiated design, have produced a straightforward and simple plan in which the accommodation asked for has been provided with, on the whole, the maximum of convenience. The central corridor type has been chosen, the one most obviously suited to the limits of the site. We doubt whether this corridor is very adequately lighted, depending as it does for its light on the front entrance and one window at the opposite end; however, lighting which looks unsatisfactory on paper is often well enough in actual practice. We note a serious oversight in the accommodation provided for bicycles. This is situated in an area which was stated to be private, nor is shelter of any sort shown on the drawings; so that not only would these bicycles be unprotected from the weather once they have succeeded in getting there, but their means of attaining this open haven are more than problematical. The same remarks apply to the coal shoot to the store in the basement. The caretaker's quarters are placed on the third floor; no second stairs are provided. The drawing office of the surveyor's department is well placed on the same floor, with a good north light. The arrangement of the large committee-rooms is excellent. The elevations are treated without a large order; most obviously the right treatment under the circumstances, from the proximity of the Assize Courts, whose elevations are designed in two superimposed orders. The front is of red brick with Portland stone dressings; altogether a refined and artistic conception. The high roofs are apparently to be covered with pantiles, giving a slightly southern effect. The windows of the first floor might perhaps have been treated with segmental heads throughout, the present effect being somewhat restless. Taken for all in all, however, we have not the slightest doubt that the scheme of these architects is the one which best answers its intended purpose.

Mr. Shrewsbury's plan is, by comparison, somewhat complicated and confused. It may be described as of the central area type, there being in fact two central areas, the lavatories being so arranged as to divide the space into two parts. The upper floor plans do not follow very logically upon the ground floor, involving much carrying of partition walls upon girders. The bicycle storage has been successfully disposed of in the basement. The elevations are tolerable, though we do not like the hybrid manner of glazing the top sash with small panes, and the lower sash in one sheet. The design possesses good points, nevertheless, which the Assessor has done well to recognise, notably the good lighting obtained for the corridors.

Messrs. Wills & Anderson's design, placed third by the Assessor, possesses several points of interest. Here again we have the central area type, in this instance more thoroughly carried out. The entrance is on the left instead of the centre, as in the two preceding schemes, and leads to a wide hall, the main stairs, semicircular on plan, projecting into the light area. At the side of these main stairs is placed a second and smaller staircase, a good feature, and conveniently placed. A corridor of liberal dimensions follows round the area, giving access to the different departments. One very serious error we noticed; the placing of the ladies' lavatory is neither convenient nor pleasant. Some better position should have been found for it. The access to the assize court is very narrow; this has been better designed in the schemes we have before mentioned. A large Ionic order is employed in the elevations, which are correct, if somewhat tame.

The remaining designs, not having the names of their authors' attached to them, we shall refer to by their numbers. It must be understood that we are unable to notice more than a very small proportion; to mention all would far exceed the space at our disposal.

In No. 97, drawn in the regular Beaux-Arts style, we suspect a well-known hand. Mr. Robert Atkinson will forgive us if we err; imitation is the sincerest form of flattery. The plan hardly comes up to the elevations. Among other inconvenient features is the placing of the medical officer and the assistant medical officer in the basement. Here, again, the ladies' lavatory is extremely awkwardly placed. The bicycle storage entails the carrying of them down a flight of steps, though indeed a very short one. No. 135 has a fairly good elevation. The balustrade is a mistake; it tends to obstruct the windows which light the third floor; the design would have looked just as well without it. The plan is rather attractive, especially the placing of the committee-rooms. No 169 might have been done in the 'sixties, so completely Victorian is its style. It is a praiseworthy, though mistaken, attempt to harmonise with the Assize Courts next door, the main cornice being kept to the same level. The plan has nothing remarkable about it. No. 36 is a pleasant drawing to look at, and shows a really artistic spirit. The elevation of No. 165 is as good as anything else exhibited, if not better; showing, as it does, an originality of the right sort. The plan, also, is not bad; the chief feature is a top-lighted, central staircase hall. No. 142 is one of the few schemes which venture upon a tower. The intention of the drawings is better than the execution; there are the germs of good ideas in it. No. 124 possesses a very fair elevation. The corridor seems to depend for light entirely on the entrance and toplight over the main stairs. No. 53 is very neatly drawn; the plan somewhat resembles the second premiated design. No. 91 is a very immature affair; we mention it because the elevations show promise of better things. They are not very good, but give evidence of a hopeful type of plagiarism, which may develop into originality.

Limits of space preclude a further review. We may add that the drawings will remain on view at the Dairy Institute, Valpy-street, Reading, till September 18. The exhibition includes the whole of the plans.

ENGINEERING DAY AT THE IMPERIAL EXHIBITION.

ALTHOUGH not particularly remarkable for engineering exhibits, the Imperial International Exhibition at Shepherd's Bush is equipped with an energetic sectional committee of engineers and others who have done their best to secure the support of industrial firms engaged in mechanical and structural engineering, building construction, mining, and metallurgy. To the general committee of the engineering section belongs the credit for the success attending the congress held on Saturday last week, when in spite of somewhat unfavourable weather a large number of engineers representing the leading technical institutions gathered at Shepherd's Bush, to take part in the programme arranged.

Early in the afternoon there was a fairly numerous attendance in the Congress Hall to hear the lecture on "Water Power and Turbines," by Mr. A. Steiger, M.Inst.C.E. We have frequently urged the more complete utilisation of water power in Great Britain, and now refer those interested in the subject to the statement of the author to the effect that there is at present available in this country 1,000,000 horse-power, which could be developed at an average cost of 40*l.* per brake horse-power. The initial outlay may perhaps seem rather large, but the permanent reduction of working cost thereby secured is a far more important item for consideration.

A part of the programme attracting greater attention from the gathering of engineers was that affording ample opportunity for inspecting the mechanical features of the various contrivances devoted to the amusement of the public. The Flip-Flap, the Spiral, Scenic, Mountain, Miniature, and Submarine Railways, the Motor Racing Track, the Canadian Toboggan, the Wiggle-Woggle, and the Witching Waves, all represent ingenious and instructive adaptations of mechanical and electrical engineering, notwithstanding their frivolous aim, and in some cases grotesque nomenclature. The numerous parties of personally-conducted visitors had also the privilege of inspecting the installations of machinery and plant in the Exhibition electricity substation, as well as in the pavilions of several leading exhibitors.

Meanwhile the reading of papers was continued in the Congress Hall, the subjects brought forward being directly connected with marine engineering. Shortly before five o'clock all parties began to assemble on the terrace of the Imperial Tower for the reception by the Lord Mayor, and after this function had been performed, the visitors again dispersed—some to inspect the very interesting exhibits scattered about the Machinery Hall and other buildings, and others to hear lectures in the Congress Hall, the subjects of the latter being "Large Gas Engines," by Mr. Percy R. Allen, M.I.Mech.E.; "Snap-Shot Drawing for Engineers and Architects," by Mr. T. R. Ablett; and "The Simplest Perspective Drawing of Machinery," by Mr. C. A. Ablett, B.Sc., A.M.Inst.C.E.

Although the congress was necessarily somewhat inconspicuous among the large attendance of the general public, it must be characterised as a complete success. Its inauguration is specially worthy of note as the commencement of a movement for bringing together a number of engineering societies and kindred associations, and we take this opportunity of commending the idea as one thoroughly deserving imitation by the leading technical institutions of the country.

THE BASSET AND MANSEL TOMB, LLANTRITHYD CHURCH.

THIS quaint and interesting Renaissance tomb is in the chancel of Llantrithyd Church, a small Gothic structure consisting of nave, chancel, and tower, situated about twelve miles to the west of Cardiff, in the county of Glamorgan. The tomb is in a perfect state of preservation and is executed in stone, the various portions being coloured and relieved with gold.

The architect is unknown, but it is attributed to Richard Twrch, who designed the beautiful Renaissance porch at Old Beaupré Castle (a drawing of which was published in our issue of April 14, 1906), the date of erection being 1600, as inscribed on one of the tablets over the entrance doorway. As Beaupré Castle is only three miles distant from Llantrithyd, and as the porch was designed for the Bassets of Beaupré, in all probability this tomb, which was erected in 1597 (as carved on the centre panel), was designed by the same hand for the Bassets of Llantrithyd, the detail in many instances bearing a striking resemblance, although not so pure as that in the porch, which was designed later.

Richard Twrch and his brother were stonecutters (*temp.* Edward VI.), and worked the Sutton freestone quarries in the neighbourhood. Owing to a disagreement arising between them (some writers saying that it was owing to a love-affair), Richard left the country, and for many years worked at his trade in London and afterwards in Italy, where he attained great proficiency in the arts of sculpture and architecture, and, at last returning to his native village, ventured upon his former business at the Sutton quarries, and executed work in so excellent a manner as to command great admiration. He was engaged by the Bassets to build at Beaupré Castle first the chapel in the year 1586, and afterwards the porch in 1600.

THE BASSET AND MANSEL TOMB LLANTRITHYD CHURCH GLAMORGAN

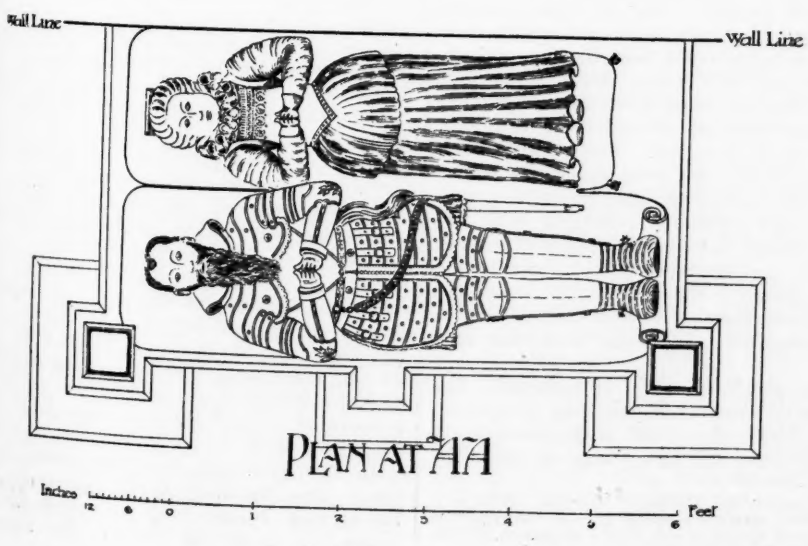
The Tomb is executed in stone, and is picked out in colours, relieved with gold. The Architect is unknown, but the design is attributed to Richard Twich a native of Glamorganshire. The Tomb was erected in the year 1597

ELEVATION OF HELMET and WALL BRACKET

HERE LYETH THE BODYES OF JOHN BASSET ESQVIER AND ELIZABETH HIS WYFE · DAVGHTER TO ANDREW NORTON OF BRISTOW ESQVIER WHO HAD ISSVE BY ELIZABETH HIS WYFE · ON ONLY DAVGHTER NAMED ELIZABETH MARIED TO ANTHONY MANSEL ESQVIER GIVING IOYNE TO ORE HEIRE MARGEL OF MARGAM ESQVIER AL WHICH POWER BODYES ARE HERE INTOMBED AT WHICH ANTHONY HAD ISSVE BY THE SAID ELIZABETH THREE SONNES POWER DAVGHTERS OF AL WHICH TWO DAVGHTERS SVRVIVED, THE ELDER MARIED TO THOMAS AVBREY ESQVIER · THE YOVNGER MARYED TO RAWLIGH BASSET ESQVIER.
WALL LINE
ELEVATION OF PILASTER behind Column
A
A
B
A.M.66
E.M.61

FRONT ELEVATION

SIDE ELEVATION

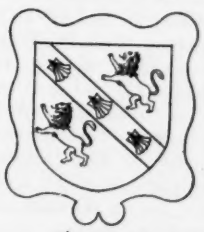


PLAN AT AA

ORNAMENT AT B

ORNAMENT ON PILASTER

SHIELD on Recumbent Figure



SHIELD at side of Column

The design of the tomb is unusual, for it is very rarely that we find the recumbent figures in conjunction with the kneeling figures under the arched canopy. It is a good example of English Renaissance of that period, and shows in parts that the designer could not free himself from the love of the old English forms, for whilst most of the mouldings are classic in outline, those at the base of the tomb are of Gothic form. In addition the upper portion of the pilasters behind the columns are enriched with quatrefoil sinkings relieved with nondescript carving in the spandrels, although this detail is not much seen, being hid behind the columns.

Under the canopied arch in the wall are the figures of John Thomas Basset and Elizabeth, his wife. The recumbent figures are those of Anthony Mansel, son of Sir Reece Mansel, and Elizabeth, his wife, daughter of John Thomas Basset. At the base of the tomb are represented, kneeling, the four daughters and three sons of the Mansels. In the centre between them is an allegorical female figure, with wings at the back, but these do not show in the front elevation. She is seated, and in her hand is an hour-glass.

John Thomas Basset, of Llantrithyd, was born in 1510, and was a member of the Inner Temple, sixth Sheriff of the County of Glamorgan, M.P. for Cardiff, thirty-third of Henry VIIIth (A.D. 1542), and in the twenty-sixth year of the reign of the same monarch (1535) was joint Attorney-General for Glamorgan with Herbert Earl of Pembroke. The said John Thomas Basset married first, Alice, daughter of Thomas Love, of Dinas Powis. He left issue by her, Thomas. He married, secondly, Elizabeth, a daughter of Andrew Norton, Esq., by whom he had issue, Elizabeth, married to Anthony, youngest son of Sir Rees Mansel, which Anthony Mansel was Sheriff of Glamorgan. The said Anthony and Elizabeth, his wife, left two co-heiresses. Mary, married Thomas Aubrey, LL.D., and the other married Sir Rawleigh Bushy.

John Thomas Basset, in the reign of Edward VIth, *cir.* 1550, was the purchaser of the Lordship of Peterston and Talavan from the Crown, afterwards possessed by Sir Thomas Aubrey, Bart. The said J. T. Basset died A.D. 1554, aged forty-four years. Elizabeth Norton, the widow of the said J. T. Basset, married, second, Sir Richard Walwyn, Kt., who was the nineteenth Sheriff of Glamorgan.

The exact wording of the inscription on the centre panel above the two kneeling figures is as follows:—

"Here lyeth the bodyes of John Basset, Esquier, and Elizabeth, his wife, daughter to Andrew Norton of Bristow, Esquier, who had issue by Elizabeth his wife, on only daughter named Elizabeth maried to Anthony Mansel, Esquier, second sonne to Sir Reece Mansel of Margam Knight al whoes power bodyes are here intombed, which Anthony had issue by the said Elizabeth three sonnes, fower daughters, of al which two daughters survives, the elder maried to Thomas Aubrey, Esquier, the young maryed to Rawligh Bussye, Esquier."

At the right hand side of the kneeling lady is inscribed, "She died A.D. 1596, aged 84 years"; and on the left-hand side is, "He died A.D. 1554, aged 44 years." On the centre panel of the reading-desk, between the two kneeling figures, is inscribed, "Elizabeth Mansel made this in 1597." On the side of the tomb on each cartouche is inscribed, "A.M. 66, E.M. 64."

The over all dimensions of the tomb are as follows:—Height 16 ft. 3 in.; width, 9 ft.; projection from back line of wall, 5 ft. 6 in. The length of the recumbent figure of Anthony Mansel is 6 ft. 2 in. from head to foot, so that when fully attired in his helmet and armour he must have presented an exceedingly fine appearance, being broad in proportion to his height.

The lower portion of the tomb with the recumbent figures is slightly out of the centre with that portion in the wall, but has been drawn to the same centre line in the drawing. W. EATON, A.R.I.B.A.

THE DESIGN AND WORKING OF A MODERN DESTRUCTOR.*

THE general trend of development and progress in destructor practice, more particularly during the past two years, has been on the following lines:—

(1) The amelioration of the conditions for the workman in the destructor house.

(2) The introduction of details in construction which ensure fairly high temperatures and a normal ruling condition in the furnace proper.

More efficient means have been introduced for the ventilation of the destructor house, and this is a step which is undoubtedly in the right direction. It is well known that, in any plant that is not strictly up to date, a visit to a destructor plant is synonymous with dust, and the experience could never be looked forward to with anything but feelings of dismay and prospective discomfort. In up-to-date plants ventilating ducts are provided, and the house is so constructed as to permit of the air being renewed from four to five times per hour. The vitiated air is withdrawn through these ducts and led to the fan inlet, from whence it is propelled to furnace ashpits.

In this direction also means have been introduced for facilitating the clinkering of the fires. This is by common consent the most laborious operation in the whole cycle in destructor working, and anything that can render easier the clinkering of the fires would be hailed by the fireman, at any rate, with the utmost satisfaction.

Taper castings have been introduced which form a line of cleavage between and in the grates, and much facilitate the breaking up of the fires before withdrawal.

Although there are several different firms who specialise in destructors, yet there are practically only two groups or types, namely, the "single cell" and "continuous grate."

These may be again subdivided or classified by the method adopted in feeding the refuse into the furnace, namely:—

(1) Top Feed. In which the refuse is fed in through the top directly on to the fire or on to a drying or desiccating hearth and then pulled forward on to the firebars.

(2) Back Feed. In which the refuse is fed in through an opening at the back and clinkered from the front.

(3) Front Feed. In which the refuse is fed in through the front and clinkered from the same opening.

With regard to the top feed, although possibly there is considerably less handling, yet there are grave objections so far as obtaining good results from the combustion and evaporisation point of view. Should a load arrive which is either very wet or contain an unusual quantity of tins, earthenware, bottles, or other incombustible matter, it must of necessity go into a particular cell, with the consequent effect of reducing very considerably the temperature in that cell. Again, the refuse has to be pulled forward on to the bars, and it is difficult to get an even thickness and uniform density over the grate when handling long and heavy firing tools over a hot fire, with the result that the forced draught will take the line of least resistance and will escape through the thin parts, to the detriment of the thicker portion which most requires its aid for a complete and perfect combustion. The front or back feed enables the stoker to apply the refuse more evenly and with more discretion, and although the method of charging with the shovel by hand has been described as putting it on by the spoonful, yet to obtain the highest efficiency the makers of mechanical stokers have been employing this method of small quantities at a time with the best results.

In the single-cell type of destructor the cell is an isolated furnace, having an opening through which the refuse is delivered on to the grate bars, and an opening at either the back or front for the outlet of the products of combustion. These latter pass into a main flue which is common to a number of cells built in parallel.

The cell being isolated, the process of combustion must go on unaided by any adjoining fire, and the temperature obtained depends entirely on the quality of the refuse with which it is charged.

There is a type of furnace which consists of two cells having a boiler between, so that the gases evolved in each cell pass immediately under the boiler, and are, consequently, cooled before complete combustion has taken place. It has the further disadvantage that, at the time of clinkering, the admission of cold air must adversely affect the boiler, having regard to the fact that the boiler is in such close proximity to the cell.

The continuous grate is, as its name implies, a number of grates in line, each having a separate ashpit, but with the space above the firebars communicating; that is to say, the gas is passed the whole length of the series of grates into a combustion chamber, and from thence to the boiler. A charge put on any one grate must naturally receive a large amount of assistance from the other fires, and the time taken in the initial ignition and combustion must therefore be considerably less than in the single-cell type.

The great fluctuation of temperature in the single cell affects the firebrick lining very seriously, due to expansion and contraction. This is taking place between each operation of clinkering, about every two hours. This fluctuation is reduced to a minimum in the continuous grate, for the reason that there are always other fires in the furnace at the time of clinkering any one fire.

There can be no doubt, however, that the continuous-grate type of furnace construction is being looked upon with much greater favour, and a few words might be said with regard to the leading features which characterise the best-known systems of this type.

It may be laid down that the following are absolutely essential features in the design of any furnace that can reasonably fulfil the primary objects for which it exists, viz., the complete destruction by fire of obnoxious matter without nuisance, and general provision for the utilisation of the heat generated in the process:—

(1) A continuous furnace chamber with the grate laid off in sections, each section independently controlled and so operated that it is a complement of the others.
(2) Provision for heating and regulating the air supply for the necessary forced draught.
(3) A combustion or dust-settling chamber.
(4) Steam generator.

The rate of burning in a continuous grate is higher than in an isolated cell. This rate of burning is materially increased if the arch over the grate is undulating, which causes the gases in one fire to be deflected on to the next, and again from that on to a third. The gases distilled from the green or newly charged refuse must be more thoroughly cremated when brought into contact with other fires, than can be the case when going direct from an isolated cell to the boiler. It is obvious therefore that, combustion being more perfect, a higher as well as a more regular temperature is attained, and therefore a higher rate of burning.

As the result of careful observation the author has found that the ratio of burning on each grate on a three-grate unit is as 3, 4, and 5. On the grate furthest from the combustion chamber the rate of burning was 55·21 lb. per square foot of grate area per hour; on the middle grate 74·6 lb., and on the grate next the combustion chamber 89·6 lb., which gives an average of 73 lb. per square foot of grate area per hour over the whole area.

In the cycle of operations which takes place after the delivery of the refuse into the storage bunker there are three distinct stages, in each of which the features

* A paper by Mr. William F. Loveday, read at a metropolitan district meeting of the Incorporated Association of Municipal and County Engineers, held at Westminster, March 26, 1909.

embodied in the furnace design play an important part. These stages are:—

(1) The charging stage.
(2) The burning stage.
(3) The clinkering stage.

With regard to (1) a storage hopper or bunker is provided. This is placed in a position convenient of access for the firemen, and just opposite the charging door to the furnaces. It is usual to provide for approximately half a day's supply of refuse in the bunker, but, of course, the hours of collection in general determine the amount of storage that should be provided for.

The refuse is shovelled direct from the hopper and spread over the furnace grate in one operation by the fireman.

Stage 2. At this stage the utility of the continuous furnace chamber and sectional grates is at once put into effect, as also No. 2 of the essential features in the furnace design, viz., the heated air-supply. Whenever the material is charged it is ignited by the flame from the adjoining fires, and the temperature of the furnace chamber is further increased by the forced draught air-supply, which is heated by means of the air-heater or regenerator. Control and regulation of the air-supply are of the utmost importance, and for this purpose a special valve is provided which can be manipulated and adjusted to meet all conditions.

Until recently the great object of the destructor furnace designer, viz., the maintenance of a uniform and normal ruling temperature in the furnace chamber, could not be attained, the chief difficulty being reached at the third stage in the process of clinkering the fires when an inrush of cold air inevitably reduces the temperature of the chamber. By an ingenious device it is now possible to automatically and continuously control the conditions determining the efficiency of combustion in the destructor furnace. This apparatus is an entirely new feature in destructor practice, and has been installed on the plant just put to work in New York, and has been an unqualified success.

House refuse ordinarily contains a high percentage of vegetable matter, which consists of upwards of 70 per cent. of moisture. Under these circumstances a steam jet as a means of supplying forced draught does not strike one as being as desirable as it would be, adding air saturated with steam to an already heavily charged moist fuel. The better method, therefore, of supplying forced draught or a pressure of air in the ashpit would be by fan. It is eminently desirable, however, that the air should be heated. This can be obtained from the waste gases after leaving the boiler by means of an air-heater through which the gases pass down a series of tubes, whilst on the outside of the tubes the air is driven from the fan into the ashpit.

There is thus a good exchange going on, the waste gases are made to give up a large amount of their heat to heating the air for forced draught. The heated air on entering the furnace absorbs whatever moisture there may be in the fuel, thereby saving the fuel to that extent which it would otherwise have to give up in the absorption of its own moisture and thus adding increased calorific value to an otherwise poor fuel. This is therefore a very important feature to bear in mind, that heated air rapidly takes up moisture from the refuse and thus materially decreases the time taken for burning. It also is a well-known fact that air heated previously to being discharged into the furnace has the effect of increasing the temperature about twice the temperature of the air so delivered.

The advantage of heating the air may be expressed in terms of coal. Thus with air at a temperature of 300° Fahr. is approximately equivalent in effect to the addition of about 1 cwt. of coal to each ton of refuse.

The ventilation of the destructor house should not be from the inside to the outside, but *vice-versa*. By this means any objectionable odour which may arise when the refuse is being delivered is not distributed to the surrounding neighbourhood, as is the case when the ventilation is from the inside to the outside. The best means of ventilation is by means of an air duct constructed in the roof, communicating with the shaft supplying the air for forced draught for the furnaces. The air is drawn from every part of the house simultaneously, heated and passed through the furnaces, and as the only means of ingress for the fresh air should be at the openings at the ground level, this method ensures that the inside of the building is as fresh as it is possible to be.

Incidentally, the fan thus serves a double purpose, as it extracts the air from the destructor house and affords a good system of ventilation, and also the purpose for which it was originally intended, namely, the supply of forced draught.

Generally speaking, the following are features which should be absolutely insisted upon in any destructor installation:—

(1) Cleanly operation, absolute freedom from nuisance to the neighbourhood, and maximum comfort for workmen.
(2) Minimum capital cost, consideration being given to the value of the steam and clinker, and general efficiency.
(3) Low maintenance charges combined with low labour cost.
(4) The necessity for heating the air supply has been more than ever demonstrated in recent years, and this can be most economically effected by placing the heater in the path of the waste gases just at the boiler outlet.
(5) Maximum evaporation.
(6) Regular steaming.
(7) Clinker of marketable quality.

The plant at Stoke Newington was erected by Messrs. Heenan & Froude, Ltd., of Manchester, and consists of two units of three grates each; each grate has an area of 25 sq. ft., and there is a separate ashpit to each grate. At the end of each unit is a large combustion chamber at right angles to the furnace, at right angles to this chamber and parallel with the furnaces are placed two Babcock & Wilcox water-tube boilers, each with a heating surface of 1,741 sq. ft. At the end of the boilers are the air-heaters, and the gases after leaving these pass direct into the main flue. Each unit is provided with a separate fan and engine which are used as before described for ventilating the building and supplying the forced draught.

There is also a Worthington pump and an injector for filling the boilers. The plant is in duplicate, and each unit is worked every alternate week.

The floor of the destructor house is 10 ft. 6 in. below the tipping-floor, from which the refuse is shot into hoppers immediately in front of the furnaces.

The furnaces are of the front feed type—that is, they are fed and clinkered from the same opening.

The average quantity of refuse received at the destructor in the summer is 30 tons per day, and in the winter 45 tons per day. This is dealt with by two shifts of two men each; the number of hours worked by each shift is eight in the summer and ten in the winter.

During the two years the plant has been in operation there has not been a sufficient use for the steam generated, and the author is therefore unable to give a complete year's working of the results which could be obtained.

At present, beyond the small amount of steam required for the fan and the pump, there is a crusher engine of 15 h.p., a disinfecting station, a small electric generating station with a dynamo of 77 k.w. capacity, which is worked nightly at a load of 170 amperes and 515 volts, and twenty-two public slipper baths. The boilers are set to blow off at 160 lb., and with the bye-pass damper partly open steam is constantly blowing off. During the winter six months, between the hours of 10 a.m. and 2 a.m., 2¼ lb. of water are evaporated per pound of refuse, and in the summer about 1½ lb. per pound of refuse. In the summer work ceases at midnight.

The clinker is used for a large variety of purposes. During the last nine months the author has used some 1,000 tons, which has resulted in a saving of 330*l.* for ballast and sand.

The clinker has been used for concrete in foundations of walls, retaining walls, floors, roofs, concrete foundations for paved roads, both wood and granite, and also paving yards and footpaths. The divisions between the slipper baths were made of reinforced clinker concrete, 1½ in. thick, at a cost of 3s. 5¼d. per square yard.

The cost for burning the refuse equals 7.3d. per ton. In addition there is the cost of cleaning the flues, amounting to 0.5d. per ton. A fitter is employed about the premises, a proportion of whose wages should be charged to the destructor. A boy on each shift is engaged for the purpose of picking out the tins from the refuse which he pulls forward for the stokers, but this is no charge on the destructor, as the amount received for the tins equals their wages. The cost of disposing of the clinker in the first year amounted to 196*l.*, but during the second year there will be no charge for this, as the sales and use to which the clinker has been put will probably result in a profit.

Consulting and electrical engineers are now beginning to awake to the possibilities of the destructor. A few years ago these gentlemen would have nothing to do with them, but in those cases where the destructor has been run as an adjunct to electric and other installations, the results have exceeded their expectations.

Master Builders' Associations, etc.

SHEFFIELD BUILDERS AND CORPORATION CONTRACTS.

A deputation from the Sheffield Master Builders' Association recently had an interview with the Town Clerk and the City Architect, and urged that the period of twelve months for retention moneys (10 per cent.) after the completion of Corporation contracts should in the case of small contracts (such as repairs and alterations) be reduced, and that the present conditions of contract should be somewhat modified as regards works of a small nature. The Finance Committee reported this week having considered the matter. They had decided that, except in special cases where the Town Clerk otherwise advised, the clause in Corporation contracts as to the moneys to be retained by the Corporation on completion of the works be modified to the following extent, namely:—Contract price up to 100*l.*, three months' retention; beyond 100*l.* and up to 1,000*l.*, six months' retention; beyond 1,000*l.*, twelve months' retention, as at present.

PETERHEAD MASTER BUILDERS.

The annual meeting of the Peterhead Master Builders' Association was held in the Town House on Thursday evening last week, the President, Mr. A. Scott, presiding. The Secretary and Treasurer submitted the abstract of accounts for the past year, which was approved of. The following office-bearers for next year were then elected:—President, Mr. W. B. Taylor; Vice-President, Mr. A. L. Williamson; Committee, Messrs. A. Farquharson, John Farquharson, W. Hadden, George Watt, James Craighead, D. Guthrie, A. Webster; Secretary and Treasurer, Mr. A. Clark Martin

HAWAIIAN BREAKWATER.—A breakwater, which, when completed, will be some 10,000 ft. in length, is now in course of construction at Hilo, in the Island of Hawaii, to protect shipping from the heavy seas that sweep from the north-east. At present some 400 ft. have been completed, and under the existing contract it is estimated that by the middle of next year a length of some 3,000 ft. will be in position. The material used for construction is a basalt rock resembling heavy granite, which is quarried some twenty-five miles away and transported to the works under contract with the Hilo Railway Company. According to the specifications, from a depth of 3 ft. below the water line to the top, boulders of not less than 8 tons in weight are to be used. The contractors are confident that the rock in question, which weighs 165 lb. to the cubic foot, will resist any action of the waves, without the use of cement to bind it.

THE BUILDER

SEPTEMBER 11, 1909.

TO CORRESPONDENTS.

NOTE.—All communications with respect to literary and artistic matters should be addressed to "THE EDITOR" (and not to any person by name); those relating to advertisements and other exclusively business matters should be addressed to "THE PUBLISHER," and *not* to the Editor.

All communications must be authenticated by the name and address of the sender, whether for publication or not. No notice can be taken of anonymous communications.

The responsibility of signed articles, letters, and papers read at meetings rests, of course, with the authors.

We cannot undertake to return rejected communications; and the Editor cannot be responsible for drawings, photographs, manuscripts, or other documents, or for models or samples, sent to or left at this office, unless he has specially asked for them.

All drawings sent to or left at this office for consideration should bear the owner's name and address on either the face or back of the drawing. Delay and inconvenience may result from inattention to this.

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N.B.—Illustrations of the First Premiated Design in any important architectural competition will always be accepted for publication by the Editor, whether they have been formally asked for or not.

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MEETINGS.

FRIDAY, SEPTEMBER 10.

Manchester Society of Architects (Incorporated).—Visit to the Garden Village, Burnage.

SATURDAY, SEPTEMBER 11.

Northern Architectural Association.—Visit to Corbridge and neighbourhood.

MONDAY, SEPTEMBER 13.

The Incorporated Clerks of Works' Association (Carpenters' Hall, London-wall).—Paper by Mr. Cloudesley Willis on "Stained Glass." 8.15 p.m.

National Association of Master Painters and Decorators (Incorporated).—Opening of the annual conference at Sheffield. President's reception in the Exhibition Hall, Artillery Drill Hall, Shoreham-street. 7.30 p.m.

TUESDAY, SEPTEMBER 14.

National Association of Master Painters and Decorators Incorporated).—Annual conference at Sheffield.

WEDNESDAY, SEPTEMBER 15.

National Association of Master Painters and Decorators (Incorporated).—Annual conference at Sheffield. Annual dinner at the Royal Victoria Station Hotel. 7.15 p.m.

Provident Institution of Builders' Foremen and Clerks of Works.—Ordinary meeting of the members. 8 p.m.

Fifty Years Ago.

FROM THE *Builder* OF SEPTEMBER 10, 1859.

OUR STREET LAMPS.

THINGS constantly before our eyes become so familiar that we are liable to pass them by without any particular attention, although, if persons of educated taste had some of these objects put before them for the first time, they would be surprised at their deformity, and wonder how such things could have been so long tolerated. Amongst the most conspicuous objects in the streets of the metropolis are the thousands of lamp-posts which line the highways, and are distinctly in view during both night and day. A glance at one of these, which may be taken as a type of the majority, shows that it has been constructed without attention to any principle of design; it is neither beautiful in form nor symmetrical in its proportions; it is a matter which might have been planned, as no doubt it was, by some ordinary mechanic, who had no knowledge of, or feeling for, art; and yet, for more than half a century, since gas put out oil, the same form, with scarcely a shade of change, has continued to be manufactured in thousands, not only for the use of the metropolis, but also for the provincial towns; the same description of lamp is reared on the same pattern of pole in remote villages, in the railway stations, and in British possessions abroad. The shape of the street lamp is as strictly adhered to as if it were a matter of caste in India. In connexion with our public buildings, where the skill of the architect has been called in to devise the form of the gas-lamps, the improvement has been great. The chief lights at Buckingham Palace have a handsome appearance, so have those within the railing of the British Museum; and at the Houses of Parliament the lamps are of artistic design, and in harmony with the architecture. Some will say, "What can you do with a lamp-post?" An inspection of some of those to which we have referred will of itself show that elegance can be imparted to what are generally considered matter-of-fact objects.

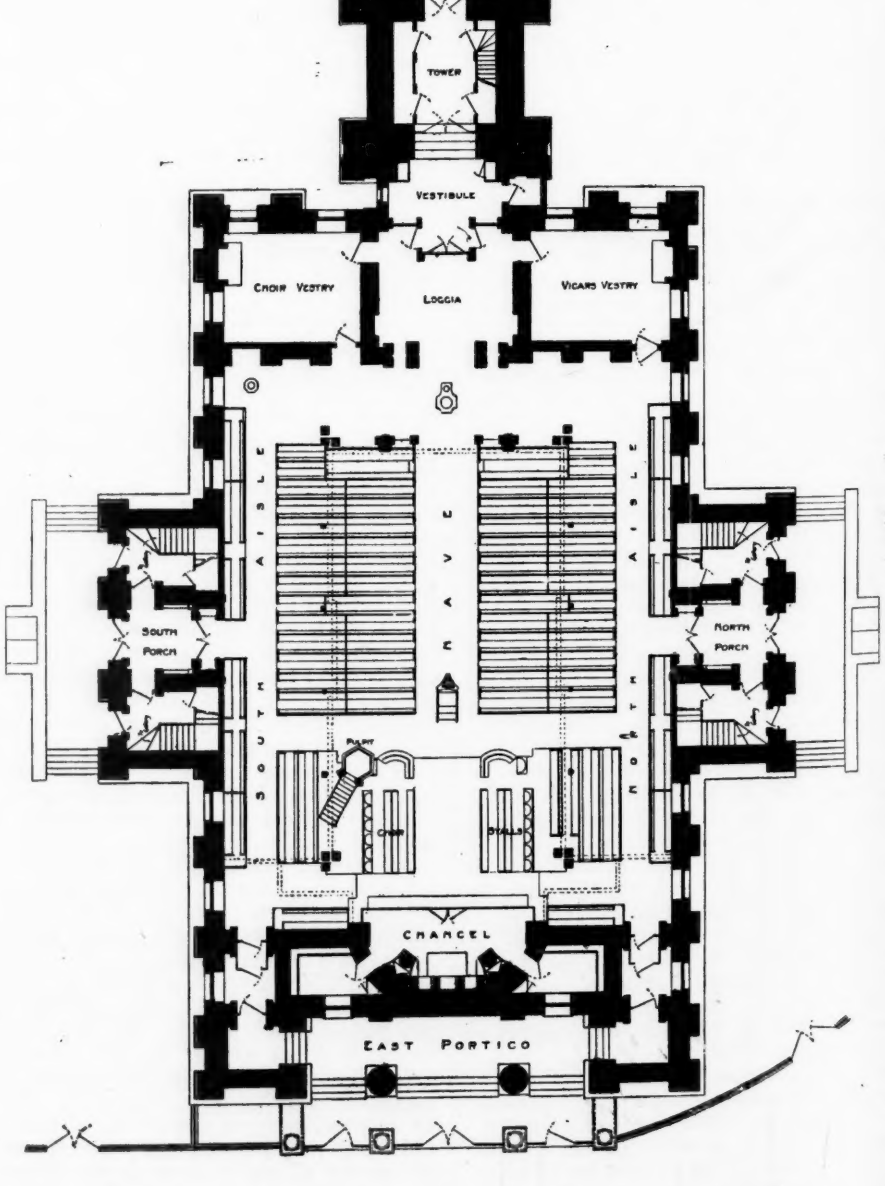
*** A reference to our article of August 21, and the sketches accompanying it, will show that in the fifty years which have elapsed little if any improvement has taken place in the design of street lamps.—ED.

Illustrations.

CHURCH OF ST. ALFEGE, GREENWICH.*

GREENWICH Parish Church was built for about 1,000 sittings in 1711-8 upon the reputed site of the death, at the hands of the Danes, in 1011, of St. Alfege, Archbishop of Canterbury. The tower, erected in 1730, was designed by John James, to whom also has been ascribed, albeit erroneously, the body of the fabric, which is by Hawksmoor. A rare print, lettered "designed by N. Hawksmoor, A.D. 1714," shows the former tower which escaped when the older church fell down, and remained until it was replaced with the tower by James. The organ, by G. England, was enlarged fifty years ago by Walker, and rebuilt by Robson in 1863. In the former church was a portrait on glass of Humphrey, Duke of Gloucester, son of Henry IV., who rebuilt the manor-house as the Palace of Placentia, and the "Castle" (on the Observatory hill), and enclosed the park. Therein were buried Robert Adams, with an inscription, "Egregio viro Roberto Adams, operum regiorum Supervisori, architecturæ peritissimo, *ob.* 1595," and Thomas Tallis,

* "St. Alphege" is, we believe, the usual spelling of the name; but as the authorities at this church spell it "Alfege" in their announcements, we have adopted the spelling in this case.



Plan of St. Alfege, Greenwich.

the composer (1585), to whom and his wife Joan was set up a brass bearing a quaint epitaph recording his career in the reigns of Henry VIII.-Elizabeth. There are monuments to John J. Angerstein, whose collection of pictures formed the nucleus of the National Gallery, and Major-General James Wolfe, who on November 20, 1759, was buried in a vault by the side of his father, Lieutenant-General Edward Wolfe, who died, in April of that year, at his residence, now Macartney House, in Chesterfield-walk, Blackheath. A bronze tablet, with medallion portrait, designed by Mr. A. Rost, of Oxford, was unveiled to Wolfe's memory on November 20 last; the window, with a figure of St. George and a representation of West's picture, was given by Mr. F. Fountain, a churchwarden, in 1896. The churchyard, three acres in extent, was laid out by the Metropolitan Public Gardens Association and opened in June, 1889. Five years ago Messrs. Thos. Dinwiddy & Sons were appointed architects for a structural renovation of the exterior of the church.

The design of St. Alfege possesses no very remarkable features; the interior is frankly a preaching-room; no attempt is made at a demarcation into nave and aisles; the gallery supports form the only longitudinal division. A shallow recess forms the chancel proper, decorated with painted coffering and strap-work, after the fashion of its neighbour, the Painted Hall at the Hospital. The saving grace of this interior is the solid and excellent workmanship exhibited in every detail of the joinery. The arrangement of the gallery stairs in shallow transepts, if we may be allowed so to term them, gives a welcome variety to the exterior. At the east end is a recessed portico of the Doric order, whose cornice, supported by pilasters, is continued round the whole building. This, and many other details (such as the broken pediment seen in the drawing, and the design of the base of the tower) show a remarkable similarity to the work of Archer at St. John's, Westminster. Indeed, did we not know to the contrary, it would be hard to believe that St. Alfege is the child of the same brain as St. George's, Hanover-square. The steeple is dignified in design, and takes its stand four-square on the ground, growing from square to octagon and octagon to circle. It may be noted that the belfry and clock stages show points of similarity to the corresponding stages in the steeple of St. Martin-in-the-Fields.

CATHEDRAL CHURCH OF ALL SAINTS, KHARTOUM.

THIS church is in progress, as the English church for Khartoum, from the designs of Mr. R. Weir Schultz.

For climatic reasons the church has been placed on an artificially formed terrace 2 ft. above the general level of the ground, and for similar reasons the floor of the church is raised 4 ft. above the terrace level.

The windows are placed well in from the outer face of the walls, allowing an ambulatory above the passage aisles, and the windows being on the inside of this ambulatory, will be proportionately shaded from the direct rays of the sun. Artificial lighting will be by small hanging electric lamps distributed over the church.

The walls are of sandstone in two colours, yellow and a pale red, from a site about 28 miles from Khartoum, brought down by boats from the quarry to the town. The vaults will be built with small local red bricks. The floor will be of Sudanese marble, and the roof covering of green glazed corrugated tiles, which it is hoped can be made locally. The church is thus being built as far as practicable with local material and almost entirely by local labour, and the design was kept very simple with this object in view from the first.

Mr. John Latimer is clerk of works; and the details of the design are being worked out by the architect, who will also design the furnishings and fittings; and these also, as far as possible, will be made by local craftsmen.

PROPOSED LONDON GOODS CLEARING HOUSE.

THIS is a design for a building for a great scheme which is still in the air, but which may, if it succeeds, effect a great change in facilitating and simplifying goods traffic in London.

The idea is to apply the system of the "Clearing House," as already practised in connexion with banking and railway accounts, to the handling of goods, and to create a great central depôt in London for the reception of goods from all railways and carriers, and their dispatch thence to their destinations. The following summary of the advantages claimed for this method we take from a paper on the subject by Mr. A. W. Gattie:—

"Owing to the speed at which business could be transacted in such a building, it would not only supplant the fourteen railway goods stations which now sprawl over about 680 acres of London's valuable area, but it would also render unnecessary many hundreds of sub-stations and carriers' receiving yards. In addition to this vast saving in space, the Clearing House system would minimise the number of transhipments of goods from vehicle to vehicle, and would greatly reduce the number of vehicles on the streets. In view of the fact that the Royal Commission have stated that an expenditure of some 60,000,000*l.* will be necessary to relieve the congested condition of traffic, this matter is evidently one of importance.

If we turn to the evidence given in 1904 by Mr. W. R. Pryke (the then Chairman of the Bridge House Estates Committee) before the Royal Commission on London Traffic, it would appear that more than half of the vans crossing bridges and traversing London streets are "empty," the remainder being described as "laden," under which category would be included everything from a full load to a single package.

Thus, if, as the Commissioners report, 60,000 vans enter and leave the City every day, 30,000 are empty and 30,000 are, on an average, semi-laden. The Clearing House system would tend towards the provision of a full load for each vehicle coming and going. But it would further minimise the number of vehicles by reducing the actual number of journeys to be performed. For example, under existing conditions, a package for Manchester is collected, say, from Oxford-street by a carrier and taken to his West-end depôt; it is there unloaded and subsequently despatched to the head depôt of the carrier somewhere in the City. It is there *again* unloaded and subsequently despatched to the required railway goods station; on arrival it is unloaded for the third time and placed upon a hand truck and tediously wheeled to the railway wagon destined for Manchester. This railway wagon is then "shunted," and eventually starts for Manchester, where a similar process ensues.

The Clearing House method involves only one loading from the premises of the consignor and one vehicle carrying goods for all destinations, all proceeding to the Clearing House.

On arrival the vehicle would be immediately relieved of its load, which would be removed from it in bulk in a detachable container by a suitable crane, and in a few minutes the same vehicle would be provided with a load in another detachable container, ready sorted for delivery in the district to which this vehicle would return.

To understand the magnitude of the proposed economy, it must be remembered that under existing conditions the detention of a carriers' van while loading and unloading is stated by carriers to extend over some eight to nine hours out of twelve, and that from calculations made from Board of Trade railway returns the detention of a railway wagon on an average extends over twenty-three hours out of the twenty-four, and that during its meagre percentage of activity it, on an average, carries only 1 ton 16 cwt., its full capacity being from 10 to 16 tons. This uneconomic condition of things does much to account for railway freight rates in this country being the highest in the world"

Looking at the section, it will be seen that the Clearing House is constructed on five levels, the lower three each with an area of nearly half a million square feet. The lowest of these levels is the railway level; or, where circumstances permit, the waterway and railway level. The next above it is the road level. These two levels would be served with a complete set of suitable travelling cranes, which would transfer goods from the 2,000 railway wagons which might be berthed beneath to the fleet of carts or motor lorries above, or *vice versâ*. By this arrangement it will be seen that vehicles engaged in transfer of their contents can be brought into immediate proximity to each other, instead of remaining a considerable distance apart, and that with the facilities provided a load of bricks or heavy stone blocks could be dealt with in minimum time and labour and with minimum risk. All goods requiring transfer in bulk would be dealt with on these two lower levels.

Above the road level would be the great sorting-room, also served by a set of travelling cranes enabling goods to be hoisted through wells in the floor to or from either the road or the rail. This sorting-room would be provided with a system of moving platforms connecting all portions of the floor space and also communicating with other moving platforms traversing other parts of the building. It will be necessary to describe these moving platforms in some detail to make the scheme intelligible. For this purpose we will select the platforms or "belts" serving the great sorting-room floor immediately above the road level (see plan). This floor is divided into a number of sorting bays or compartments, each bay representing a city, a district, or a route, as convenience may require. Each bay receives from the overhead crane serving it unsorted goods removed in bulk in a detachable container from the road or rail vehicle underneath. On the arrival of such a container in a sorting bay the contents will be removed one by one by the operator, who will place them one by one on a steel tray or receiving plate. For example, the address on the first parcel will be say, Manchester, it will therefore have to be sent to the Manchester bay, the scheduled number of which might show it to be at the other end of the building. The operator will strike the requisite keys of the "controller" (with which each bay is provided), and on depressing his starting switch the tray will from that moment pass under electro-magnetic control and automatically proceed to the desired destination. The next parcel will perhaps be for the Bristol bay, the scheduled number of which may be at some other part of the building. An empty tray having automatically taken the place of its predecessor, this will again be put under control in the same way, with the same result. Meantime all the other operators in the Clearing House will be doing the same thing, consequently any goods destined for any particular bay will be automatically received by the receiving officer of that bay, and the empty tray will go to supply the despatching side of the bay with the required sequence of "empties."

It will be noted that it is claimed that heavy bales of goods can be automatically taken from a position of rest, set in motion, and brought to a standstill at a predetermined point; and that this can be accomplished by a series of continuously-moving platforms. It will immediately occur to the reader that such an arrangement would involve shock. This, however, is not the case.

The platforms are divided into sections, and each section is provided with a double set of magnetic rollers. These magnetic rollers are mounted in loose bearings, and on being energised by their controllers (to be mentioned hereafter) they draw themselves up to the superimposed tray, which they magnetically seize, and, by revolving, drive this tray into the required position on the platform, and then drop back into their former position, shooting a pair of suitable bolts in so doing. The platform having traversed the required distance, the "controller" will again come into action and energise the rollers, which will again function in the desired manner. The controllers are arrangements of switch-disks, which are actuated by alternating current energising magnets which operate suitable ratchets, each half wave imparting an angular movement constituting a degree on any or all of the disks.

Of the architectural treatment of the proposed Clearing House readers can judge for themselves from Mr. Ayling's perspective view.

We should be glad to see the scheme seriously considered. It might go a good way to solve some of the difficulties in regard to London traffic.

HALL'S ALMSHOUSES, BRADFORD-ON-AVON.

THIS building was founded and endowed in 1700 by John Hall for four poor men. The founder was the last of an ancient family who had been associated with Bradford-on-Avon for centuries. It was one of this benefactor's ancestors, another John Hall, who built the interesting but over-elaborate Jacobean mansion of Kingston House near by. The almshouses are built of stone throughout, the blocks used on the front elevation being exceptionally large, even for such a stone-producing county as Wiltshire. Above the two centrally-grouped doorways a beautiful Renaissance panel exhibits on a shield the "three battleaxes" of the Hall family, and the motto "Deo et Pauperibus" (for God and the Poor). One chimney-shaft bears the letter H, surmounted by a coronet, for Hall, the second shaft an M, also with a coronet, for Manvers, the Earl of this name being a lineal descendant of the founder and the present administrator of the charity. The pleasing appearance of the building to-day is largely due to conditions as enviable as they are rare. In the first place the structure is complete, nothing having been added or taken away, while its situation at the junction of two main roads enables one to walk round and view the edifice from all points of the compass. Would that all good architecture could be seen to such advantage.

Bradford-on-Avon has managed to retain quite a number of its old domestic buildings, in addition to its wonderful little bridge chantry, one of three left in England (the others being at Rotherham and Wakefield), and its Saxon church, attributed to St. Aldhelm, the first Bishop of Sherborne, in Dorset.

SIDNEY HEATH.

WOOD FLOORS IN AUSTRALIA.*

"DURING the last few years a great deal has been said about the propriety of supporting local productions, and it is on the subject of Tasmanian and other hardwood floors that I wish particularly to make a few remarks.

About four years ago, I believe, the first blue gum floors were laid down here, and the impression created in my mind by the appearance of the floor after being dressed off, treated with ammonia, oiled and wax-polished, was most favourable. The surface was "satiny," and to the lay mind the floor might have been of oak. I have seen these floors laid down, and everything done in the way of dressing off, staining, and waxing, and the result was somewhat the colour of a paling fence which was well weathered. I found that this was due to the omission of the oil, which brings up and deepens the grain.

There sprung up a great demand for Tasmanian blue gum in consequence of the success of these first few floors; and another result was that, the demand being unexpected, the supply fell short, and the blue gum or messmate from the Otway Forest found its way into the market. This timber has not the good qualities of the Tasmanian, and has other defects of its own, principally Licteus Brunneus, generally known as Borer, which I will mention further on.

A peculiarity of blue gum floors is that, if well seasoned, they should not be laid in the summer, and if not well seasoned they should not be laid at all. In the case of the well-seasoned wood, if laid in the summer and well cramped up, the boards swell owing to the moisture of the winter, and the floor rises in the form of a bow. On the upper floors this is not noticeable, but on the ground floors it causes every piece of furniture to shake and rattle, and necessitates wedging up under the joists. This is often difficult to do, owing to the want of space under the floor. Of course, we cannot select exactly the right weather or time of year to do our building operations, otherwise there would be few defects, and an architect's life would be a most enviable one. But I have noticed that small matters like a shaky floor, or a bell which will not ring, cause more trouble to the client, and of necessity to the architect, than something of a really much more important nature.

Before I leave the blue gum to swell or shrink, as it apparently must do one or the other, I would like to mention the fact that borer is being introduced into our houses in large numbers. A good deal of it comes in the hardwood from the Healesville district, but it is very prevalent in blue gum. I have tried a number of remedies—kerosene, carbolineum, and corrosive sublimate. The latter I believe to be effective, and it is my opinion also that if the undersides of the floor boards were brushed over with carbolineum before being laid, it would be a wise and effective precaution.

Our choice of flooring timbers in this country is limited practically to the imported deals, kauri, blue gum, and jarrah, with occasionally a floor of rimu. In Sydney the tallow wood is largely used for factory and warehouse floors, and wears exceedingly well. Kauri, with its shrinking nature, is too well known to require comment, and I hardly like to speak about rimu, as my experience in this wood is limited, but

* A paper read before the Royal Victorian Institute of Architects, June 29, by Mr. F. L. Klingender, Fellow.

I shall be pleased if the mention of it here will produce some enlightening remarks later on.

I wish to put a strong case forward for the more extensive use of parquet floors for residential work. There is a class of parquet obtainable, consisting of small pieces of oak, walnut, etc., ¼-in. thick, laid to a design, and backed with strong canvas. This has the butting edges free, and the floor may be rolled up for convenience of carriage. The great advantage of this material is that it may be laid down on old floors, and the thickness is so slight that it is not necessary to cut down the floor below it. Of course the real parquet is immensely superior, but it necessitates such alterations, when applied to existing buildings, as to make it exceedingly expensive. A great advantage which parquetry possesses, and which is not generally recognised, is that valuable rugs and carpets will wear much longer than if laid on an ordinary floor.

I would like, before leaving the subject, to say a word or two about secret nailing. Occasionally we are asked by clients to adopt this method in connexion with kauri flooring. Personally I do not favour it, as I believe that the fixing is not sufficient, too much dependence being placed upon the wood itself. A kauri floor well cramped and nailed, and the nails punched and stopped, and the floor well dressed off, will make sure of good results where the other system may be in doubt.

In conclusion, I would emphasise the desirability of natural finish to our floors (that is, where suitable woods are used), as against stain and varnish and other similar horrors."

Legal Column.

THE COMPULSORY ACQUISITION OF PROPERTY.

In our issue for December 12 last we drew attention to a memorandum drawn up by Mr. J. F. MacIlwraith on the Small Holdings and Allotments Act, and to the protest of the Bar Council as to the provision in that Act as to disallowing counsel or expert witnesses without the leave of the Department on arbitrations. The procedure provided by the Small Holdings and Allotments Act for the compulsory acquisition of land is the model adopted by the present Parliament for various purposes; it reappears in the Housing and Town Planning Bill, and again in the Development and Roads Improvement Fund Bill; and public attention should be drawn to this very one-sided form of procedure on proceedings to acquire land compulsorily.

The Department, which has administrative functions in connexion with the working of the Acts and an interest in the arbitration, in the first place appoints the arbitrator under the Small Holdings Act and the Town Planning Bill, and the Department has an absolute discretion as to whether the parties interested may be represented by counsel or may call expert evidence. If the Department confirms an order it is absolutely conclusive and the Courts cannot interfere. The arbitrator nominated by the Department is selected by them as a person fit to act "on his own knowledge and experience," and his known views may have had something to do with his appointment; the authority acquiring the land may be represented by a highly-skilled advocate such as a Clerk to the Council, who may be counsel; but the person whose land is to be acquired is taken before this tribunal without the ordinary right accorded even to criminals of being represented by counsel and calling witnesses. Mr. Burns attempted to justify this procedure by saying that it was to the interest of the local authority to save money being spent upon counsel and witnesses, so that more money should be available to buy more or better land for the erection of more and better cottages. This argument loses sight altogether of one party to the arbitration, the person whose land is being acquired. Mr. Burns also alleged that the system had worked fairly under the Small Holdings Act, and that until evidence could be adduced that it worked unfairly it should be extended. He appears to have overlooked the case *ex parte* Ringer, noted in the *Builder* July 24, and the observations of the judges on the system and its results.

In the Development and Road Improvement Fund Bill one concession has been made—the arbitrator is to be appointed by the Lord Chief Justice in England, and this is one step in the right direction. We are strongly in favour of speedy and cheap procedure, but averse to departmental autocracy. Besides the impartiality of the tribunal which could be secured as in the Development Bill, the right to be represented by one counsel and an ultimate appeal to the Courts should be conceded where private rights are interfered with and private property is being compulsorily acquired. In nine cases out of ten the decision of the arbitrator should be accepted, but in the tenth case grave injustice may be done or more serious interests may be concerned, and the Department which is concerned in the administration of the Acts, and which appointed the arbitrator and directed how the parties should be represented and what class of evidence they might call, should certainly not be the final arbiter. Right of access to the Courts has been conceded in the Finance Bill, and it should be conceded in every case where private rights are expropriated.

NEW STREETS.

The case of Attorney-General *v.* Gibb (current *Law Reports*) is one of considerable importance to builders and landowners. One Gibb had purchased some land in the Borough of Tenterden, and he employed a builder (Weeks) to build some cottages upon it. One block of cottages was to face a road called Station-road; the other block lay some way back from this road, and the approach to these cottages was a pathway between an old agricultural hedge and a "spinal" fence which had been erected 6 or 7 ft. from the front of the second block of cottages. This pathway extended a distance of 202 ft. from Station-road, and was only 5 or 6 ft. in width. The Urban Sanitary Authority, under sect. 157 of the Public Health Act, 1875, had made by-laws with respect to the construction of new streets, and these by-laws provided that where a new street exceeded 100 ft. in length its width should be at least 36 ft., and it should be constructed for use as a carriage-road, if it formed the principal means of access to any building. The facts are rather complicated because, when the plans were submitted to the local authority, objection was taken to the footway, and the builder, without referring to the owner, undertook that as soon as land could be obtained a 36-ft. road should be constructed. Nothing having been done by the owner to carry out this undertaking, which was, in fact, not communicated to him, an action was commenced by the Attorney-General, at the relation of the Council, for a declaration that the defendant had laid out a new street in contravention of the by-laws, and for a mandatory injunction requiring the defendants to lay out a road of the prescribed character. Sect. 4 of the Public Health Act, 1875, defines "street" as including "any highway (not being a turnpike road) . . . and any road, lane, footway, . . . or passage whether a thoroughfare or not," and the Court held that "new street" in sect. 157 could not be confined to new streets in the popular sense of roadways with houses on each side, but that whatever was a street within sect. 4 might become a "new street" within sect. 157. The Court, having considered the by-laws, found that there was no reason for saying that the by-laws were *ultra vires* or that the width specified for the roads was unreasonable as applied to a footpath to cottages, and the injunction was granted, but its operation suspended.

It would appear that by-laws such as this must in certain districts hinder landlords from furnishing additional cottage accommodation, as to build six cottages is a trifling matter compared to laying out and constructing a carriage-road 36 ft. in width, but in urban areas such as that in the case in question they are possibly necessary as, for the removal of dust, etc., the cottages must be easy of approach; a consideration of such a case as this, however, well illustrates the undesirability of the local authorities in rural districts applying by-laws only applicable to urban areas, which is sometimes the case. Before leaving the subject, one word may be said about the position in this case of the builder and the owner. The Court held that, on an action for breach of by-laws, as Weeks was the agent for Gibb for the purpose of discussing the plans with the Borough Surveyor, his want of authority was no defence to the action for an injunction by the Attorney-General, but Weeks, not being a proper party to the action since he had not control of the land, would technically have the action dismissed as against him, the injunction being allowed as against Gibb.

LONDON AND DISTRICT BOROUGH COUNCILS.

Deptford.—In connexion with tramway developments the Improved Wood Pavement Company, Ltd., is to undertake wood paving works in Malpas and Shardeloes roads, the contract price being 8,669*l.* 11s. Messrs. W. H. Wheeler & Co., Ltd., are to undertake the paving of footways in the same roads, at a cost of 690*l.* 11s. The Lighting Committee recommended the acceptance of an offer by the South Metropolitan Gas Company to convert the whole of the burners of the street lamps to the inverted type, at an initial cost of 261*l.*, and at an increased expenditure per annum of 879*l.* The report was, however, referred back by the Council at their meeting on Tuesday evening with instructions to bring same up again in one month. Plans have been passed as follows:—Messrs. J. Shorter & Co., five houses, Ffinch-street; Messrs. Maynard Brothers, three houses, Briant-street.

East Ham.—Dr. G. Sowden, the Medical Officer of Health, in his annual report, says that the following improvements are required in the Public Health equipment of the borough:—A new mortuary, discharge block at isolation hospital, public health offices, covered public swimming-bath.

Hackney.—Owing to unexpected demands for power, the work of providing a new feeder for the Hackney Wick district, with certain distributor links, and which it was thought would not be necessary for some months, is to be put in hand immediately. The cost is estimated at 3,650*l.* A sewer in Durrington-road is to be reconstructed, and three new manholes provided, at a total cost of 340*l.* Plans have been passed as follows:—Messrs. Young & Hall, additions to mortuary and covered way at Metropolitan Hospital, Kingsland-road; Mr. S. H. Barclay, fifteen houses, Ashtead-road (Spring Hill). The following have submitted plans:—Mr. A. Monk, factory, offices, stables, etc., Berkshire-road, Hackney Wick; Mr. W. H. Elsdon, two-story storeroom at rear of 38, Albert-road, London Fields.

Harrow (Middlesex).—Dr. Little, the Medical Officer of Health, in his annual report, says that married men with large families have difficulty in finding housing accommodation, and he recommends the local authority to consider the desirability of providing accommodation which could be let at a moderate rent to meet this difficulty.

Hayes (Middlesex).—Dr. Higginson, the Medical Officer of Health, in his annual report, expresses the opinion that there would be a demand for cottages in that district at a rental of 5s. to 6s. per week, if such could be built.

Hendon.—Plans have been passed by the Rural District Council for four houses in Belmont-road, Pinner, for Mr. W. Strawbridge.

Stoke Newington.—Professor Henry Kenwood, the Medical Officer of Health, in his annual report, says that as the results of decentralisation a large number of empty houses are to be seen in most parts of the metropolitan area, but the reduction of the density of population per acre thereby involved is not accompanied by a reduction in the density per room, and overcrowding still continues. What is needed in the outskirts of the metropolitan area is accommodation at 2s. per

room per week. It is impossible to construct dwellings to be let at that rental, but it is worthy of consideration as to whether some of the older empty houses, which are now to be obtained at a very low price, could not be adapted structurally as tenement houses at 2s. per room. Meanwhile, it is clearly the duty of Public Health authorities to wage war against insanitary dwellings, so as to make them no longer profitable for the slum landlord. It is strange that as recently as twenty years ago the housing problem in London appeared to demand for its solution the provision of more houses, whereas to-day there is a superabundance of houses, and yet the problem remains as serious as ever.

Watford.—The Surveyor of the Rural District Council has prepared plans for making-up, draining, kerbing, etc., Abbots-road, Abbots Langley. The estimated cost is 6,430*l.* The work is being undertaken to meet the requirements of the County Surveyor, but an effort is to be made to reduce these requirements. Plans have been passed as follows:—Mr. W. G. Taylor, Chorleywood, two houses, Christ Church-crescent, Radlett; Mr. Wright, four cottages, North-road.

Wimbledon.—Repairs are to be carried out to five streets, at an estimated cost of 507*l.*, and four roads are to be made up, at an approximate cost of 440*l.* Richmond-road is to be made up immediately after a Local Government Board inquiry has been held into an application for a loan. Messrs. Stroode & Co. are to install a heating system at the Isolation Hospital, the contract price being 639*l.* 10s. There is other building work to be carried out in connexion with the installation which will cost 160*l.* The following plans have been passed by the Council:—Mr. C. W. Maplesden, addition to Christ Church, Aldwyne-road; Mr. T. Holloway, additions to Anglo Engraving Company's works, Kingston-road. Plans have been lodged as follows:—Messrs. Flood & King, for extensions to leather works, South-road; Messrs. Richard, Richardson, & Gill, conversion of Worple Hall into skating-rink; Mr. J. C. Walker, twenty-two houses, Panmuir-road.

PROJECTED NEW BUILDINGS IN THE PROVINCES.

ABERCYNON.—Chapel and school; Secretary, Presbyterian Forward Movement, Abercynon.

Abertridwr.—Men's institute, Windsor Colliery; Secretary, Windsor Colliery Company, Abertridwr.

Aldershot. — Secondary school (12,000*l.*); Messrs. Kingham & Kingham, architects, Grosvenor-road, Aldershot.

Anderston (Glasgow).—Extensions to St. Patrick's Church (10,000*l.*); Mr. F. W. Burke, architect, 32, Walter-street, Glasgow.

Astley Bridge.—Library; Messrs. Bradshaw & Gass, architects, Bolton; Mr. R. Carlyle, builder, Old Trafford.

Atherstone.—Extension to hospital; Clerk to the Guardians, Atherstone.

Beverley. — Mission hall, Church-lane; Trustees of St. Nicholas Church, Beverley.

Blarden.—School (10,000*l.*); Mr. J. M. Monro, architect, 28, Bath-street, Glasgow.

Blaydon.—Secondary school; Mr. W. Rushworth, architect, Shire Hall, Durham.

Bloemfontein. — School; Mr. Stafford, builder, Sunderland.

Bolton.—Library, Great Lever; Messrs. Bradshaw & Gass, architects, Bolton; Mr. J. Cocker, builder, Walkden.

Bootle.—Institute; Messrs. Shepherd & Bower, architects, Victoria-street, Liverpool.

Brechin.—Additions to infirmary; Mr. W. Fettes, architect. 31. St. David-street, Brechin.

Broadford.—Church and manse; Trustees, United Free Presbyterian Church, Skye.

Broughton Moor. — Hospital (3,500*l.*); Borough Surveyor, Mr. H. B. Williams, Workington.

Cambridge. — Pumping-station; Mr. J. Julian, Engineer, Town Hall, Cambridge.

Castle Douglas.—Drill hall (1,400*l.*); Messrs. McCrombie & McKenzie, architects, Dumfries.

Chapel-en-le-Frith.—P.M. church, for the Trustees.

Cheltenham.—Extensions, Ladies' College; Mr. E. Waller, architect, College Green, Gloucester.

Cowdenbeath.—Port-office; Mr. C. Barclay, architect, Cowdenbeath; Mr. D. E. Walker, builder, Cowdenbeath.

Cowpen.—School; Mr. J. Forrest, architect, Moot Hall, Newcastle-on-Tyne.

Cumberland.—Additions, Camerton Hall; Mr. J. H. Martindale, architect, Carlisle; Mr. T. Johnson, builder, Workington.

Deal.—Additions, Wesleyan school; the Trustees, Wesleyan Church, Deal.

Digby.—Extensions, parish church; Mr. A. Bond, architect, Grantham.

Eastbourne.—The Town Council has passed the following plans:—Addition, "Clovelly Kepplestone," Staveley-road, Mr. F. G. Cooke, architect; addition, Eastbourne Gasworks, Mr. J. Coster, architect; motor-house at "Carberry," Fairfield-road, Messrs. Miller & Selmes, builders; addition to Clifton Hotel, South-street, Mr. J. G. Ensor, architect.

Edinburgh.—Mills for Hill, Craig, & Co., paper manufacturers, Balerno.

Epsom.—The Rural District Council has passed plans lodged by Mr. P. M. Walters for buildings in Crampshaw-lane.

Goole.—Additions to Isolation Hospital; Clerk to the Guardians.

Govan (N.B.).—Skating-rink; Mr. G. A. Boswell, architect, 53, Bothwell-street, Glasgow.

Great Harwood.—Fifteen houses, Hartley-street; Mr. W. Griffiths, architect, Great Harwood. Twelve houses, Park-lane; Messrs. Scott & Proudlove, architects, Great Harwood.

Halliwell.—Library; Messrs. Henderson & Brown, architects, Bolton; Messrs. E. & D. McGuinness, builders, Bolton.

Hammish.—Church; Mr. W. Bowers, builder, Hereford.

Haslingden Crane. — Mission hall, St. Stephen's Church; Mr. H. Fielding, architect, Haslingden.

Hawarden.—Isolation hospital (3,500*l.*); Surveyor, Rural District Council.

Highampton.—School; Mr. P. Morris, architect, 1, Richmond-road, Exeter.

Highbridge.—School; Messrs. Samson & Cottam, architects, High-street, Bridgwater.

Hindley.—Grammar school (12,000*l.*); Mr. R. Pennington, architect, Wigan; Mr. A. Wigan, builder, Ince, Lancs.

Hove.—The Town Council has passed the following plans:—Eighteen pairs semi-detached houses, Lyndhurst-road, Mr. W. H. Overton, for Messrs. Curling & Co.; six pairs semi-detached houses, Wish-road, Messrs. Barnard & Son.

Hull (East).—Additions to Liberal club; Mr. A. Thorp, architect, Hull.

Hungerford.—School; Mr. E. Fisher, architect, 10, Buckingham-street, Strand, London. W.C.

Kenfil Hill (Bridgend). — Police-station; County Surveyor, County Hall, Bridgend.

Kilmallie.—Church; Mr. P. M. G. Chalmers, architect, 95, Bath-street, Glasgow.

Kirkcudbright.—Drill hall (3,000*l.*); Messrs. McCrombie & McKenzie, architects, Union-chambers, Dumfries.

Leigh-on-Sea.—Congregational church, for the Trustees.

Leith.—School (10,000*l.*); Mr. J. Craig, architect, 85, Duke-street, Leith.

Liverpool.—Flour mill, Soho-street; Messrs. R. Owens & Sons, architects, 3, Crosshall-street, Liverpool. Skating-rink; Mr. G. Dalton, architect, Lord-street, Liverpool.

Lumphinnasus.—Additions to school; Mr. J. Scott, architect, Inverkeithing.

Lurgan.—Bank; Mr. Vincent Craig, architect, 5, Lombard-street, Belfast.

Maesteg.—Nineteen houses, Meadow-street; Mr. Owen Jones, architect, Maesteg.

Newton Abbot.—Secondary school; Mr. P. Morris, architect, 1, Richmond-road, Exeter.

Newtownards.—Extension to church (1,300*l.*); Mr. T. Paisley, builder, Newtownards.

Ninebanks.—School; Mr. J. Forrest, architect, Moot Hall, Newcastle-on-Tyne.

Northampton.—The following plans have been passed by the Town Council:—Additions to factory, Magee-street, Messrs. Crockett & Jones; additions to factory, Ash-street, Messrs. Stead & Simpson, Ltd.; five houses, Garrick-road, Mr. R. Cosford; seven houses, Knight's-lane, Mr. W. S. Brown.

Old Trafford.—Deaf and dumb school; Messrs. Barker, Ellis, & Jones, architects, 20, Cooper-street, Manchester.

Orsett.—Extensions to Workhouse; Mr. C. M. Shiner, architect, Grays, Essex.

Plymouth.—Laundry at Workhouse; Clerk to the Guardians.

Ramsey. — Isolation hospital; Surveyor, Urban District Council.

Rastrick.—Additions to Grammar School (2,000*l.*); Mr. Stocks Sykes, architect, St. Peter's-street, Huddersfield.

Runcorn.—Eighteen houses; Mr. M. Collins. Runcorn.

Ryhope.—School; Mr. W. Rushworth, architect, Shire Hall, Durham.

Sandbach.—School; Mr. Beswick, County Architect. Chester.

Seaforth.—Asylum (14,000*l.*); Clerk to the Lancashire Asylums Board.

Sheffield.—Offices and messroom at Lumley-street destructor; Messrs. Wellerman Bros., builders, 223, Attercliffe-road, Sheffield. The Town Council has passed the following plans:—Lodge at Firth Park, City Architect, Sheffield Town Council; additions to premises, Merton-lane, Messrs. Stringer & Co.; additions to premises, Newhall-road, Messrs. Sanderson, Bros., & Newbould, Ltd.; additions to premises, Bessemer-road and Faraday-place, Messrs. Jonas & Colver, Ltd.; seven houses and stabling, Mount View-road and Warminster-road, Mr. W. Hall; five houses, Woodbourn Hill, Mr. Albert Swift; four houses, Wincobank-avenue, Mr. G. E. Pye; additions and alterations to premises in South-street Moor, for the General Post Office; four houses, Holmhirst-road, Mr. S. Higton; six houses, Holmhirst-road, Mr. W. Stockton; additions to Montgomery Hotel, St. Mary's-road and Suffolk-lane, Messrs. Duncan Gilmour & Co., Ltd.; church, Bold-street, Mr. Oates; tramway depôt, Shoreham-street and Leadmill-road, for Sheffield Corporation Tramways Committee; additions and alterations to premises in Westbar and Workhouse-lane, also additions to Firvale Workhouse, for the Guardians; five houses, Dixon and Wynyard roads, Mr. W. H. Oldfield; six houses, Little-lane, Mr. A. J. Brown, jun.; forty-eight houses, Allerton-road, Spofforth-road and Harrogate-road, Mr. F. U. Laycock; additions to premises, Princess-street, for Messrs. J. Smith's Tadcaster Brewery Company, Ltd.; twenty houses and stabling, Frickley and Fulney roads, Mr. A. E. Gosling; seven houses, Clifford-road and Psalter-lane, Messrs. H. Brumby & Son; additions and alterations to premises in Norfolk-street, Messrs. Mappin & Webb; additions to premises, Sylvester-street, Messrs. Stephen Fisher & Co.; additions to premises in Shoreham-street, Messrs. S. S. Brittain & Co.; six houses, Wade-street, Mr. J. Lidster; sorting office, Smithy Wood-road, Messrs. H. Boot & Son; alterations to Prince of Wales Hotel, Westfield-terrace, Messrs. T. Berry & Co., Ltd.; four houses, Stanford Grove-road, Mr. C. H. Burden; vicarage house, Barnsley and Horndean roads, for the Rev. L. E. Day; four houses, Duncan-road, Messrs. J. & T. Andrews.

Silksworth.—Sunday-school; Mr. H. J. Cook, architect, Silksworth.

Southend-on-Sea.—Roman Catholic church, Southchurch-road; Father Van Meenen, Southend-on-Sea.

Stockton.—School; Mr. J. Sanderson, architect, 134, High-street, Stockton.

Stoneferry.—Oil mill, for Messrs. Barton & Waterhouse, Hull.

Strabane.—Additions to Workhouse; the Guardians, Strabane.

Tanfield.—School (3,500*l.*); Mr. Hunter, builder, Washington.

Trundon Grange.—Twenty-five villas. Mr. R. Downs, architect, Trundon Grange.

Wakefield.—Home for children; Clerk to the Guardians.

Wallasey.—House (1,500*l.*); Mr. R. Hulmes, architect, North John-street, Liverpool.

Warrington.—Administrative block at Sankey Sanatorium (783*l.*); Mr. J. Dolan, builder, Napier-street, Warrington. The Town Council has passed the following plans:—Alterations to auction-room, Knutsford-road, Mr. Atkin; lounge and lavatories, Rylands-street, for the Royal Court Theatre Company, Ltd.; premises, Market-gate, for Messrs. Boots, Ltd., head office, Nottingham; additions to skating-rink, Wilderspool Causeway, for the Palatine Rinks Company, Ltd.

Whinney Hill.—Church; Trustees, Parish Church, Rotherham.

Wigan.—The Town Council has passed the following plans:—Four houses, Northumberland-street, Mr. H. Dickinson; additions to workshop, Wallgate, Messrs. J. H. Peck & Co., Ltd.; workshop, Gidlow-lane, Mr. C. Mynekyme.

Wigglesworth.—Chapel; Trustees, Wesleyan Church, Wigglesworth.

Withypool.—Residence; Messrs. Tollit & Lee, architects, St. Aldate-street, Oxford.

Woodhall Spa.—Additions to St. Peter's Church (1,000*l.*); Trustees of Church.

Competition News.

EXTENSION TO GRIMSBY TOWN HALL.

The assessor, Sir W. Alfred Gelder, F.R.I.B.A., was to present his award to the Finance Committee of the Corporation at their meeting on Wednesday, the 8th inst., and the Committee were to report to the Town Council at its meeting on the 10th. The Committee will arrange the dates between which the drawings will be on view, and the decision of the Town Council will be published during the week following the 10th. One hundred and four architects applied for particulars. Of these forty-five returned the papers and had their deposits refunded, leaving fifty-nine deposits in the hands of the Corporation. Fifty architects sent in fifty-one designs (one competitor submitting an alternative scheme).

[By telegraph we are informed that the Committee recommend Messrs. Eade, Johns, & Browne (Ipswich) for the 1st premium; Messrs. Withers & Meredith (London) for the 2nd; and that the question of the 3rd premium is

referred back to the assessor. We give the information as worded, without exactly understanding why the Committee and not the assessor are named as awarding the premiums.]

NEW COUNTY COUNCIL OFFICES, READING.

At the Assize Courts, Reading, on Saturday, the designs of Messrs. Warwick & Hall, of South-square, Gray's Inn, London, W.C., were chosen for the proposed new offices of the Berkshire County Council in The Forbury, Reading. The second and third premiums were awarded respectively to Mr. E. J. Shrewsbury, of Maidenhead; and to Messrs. Wills & Anderson, Bloomsbury-square, London.

Trade Catalogues.

MESSRS. LOCKERBIE & WILKINSON (Tipton) have sent two well-produced and interesting catalogues. The first contains full details and prices of various kinds of ball-bearing fittings for sliding doors, folding partitions, etc., and of overhead runways for warehouses and workshops. Illustrations of wrought-iron sliding doors are also given. The other catalogue deals with ornamental and constructional work in wrought and cast iron, and contains examples of well-designed railing and gates, balustrades, balconies, grilles, weather-vanes, signs, lamps, dog-grates, etc.; the constructional work includes conservatories, roof principals, and fire-escape stairs. The same firm have sent us from their Birmingham head office a catalogue containing numerous illustrations of ornamental rainwater heads and pipes, which are made of either lead or iron; many of the designs are excellent. The rainwater and soil pipes of lead or iron have special ears of simple but interesting design, and some of them are provided with the "Duecless" patent fixing. Rainwater gutters, ornamental wrought-iron railings, and constructional steel and iron work are also illustrated. Leaflets and cards have been sent us by the same firm containing particulars of their automatic penny-in-the-slot locks for public lavatories, etc., door springs, ball-centre-bearing axle pulleys, kitchen ranges, the "Locwil" firegrate without front bars, and the N.A.P. weightless window fittings. From Messrs. Lockerbie & Wilkinson we have also received a very artistic catalogue entitled "A Few Examples of Select Brasswork for Architects." The illustrations are printed on toned paper, and include door-knobs, lever and grip handles, finger-plates, thumb handles and plates, rim-locks with ornamental cases, bell-presses, casement stays, bolts, and fasteners, letter plates, etc. All the designs are interesting, and the catalogue will certainly be appreciated by architects.

The Nautilus Fire Company have sent us a four-page catalogue containing fifteen illustrations of their patent "Bush" fire. This is a firegrate without front bars. The bottom consists of a pyramidal firebrick, with a narrow grating on three sides between it and the firebrick body. An ashpan is provided to collect the ash, and the metal front is fitted with a ventilator. The illustrations lead us to think that the grate will be economical and efficient, and some of the designs for the metal surrounds are decidedly above the average.

The Albion Clay Company (Woodville, Burton-on-Trent) have sent us useful illustrations of their well-known "Paragon" pipes, and of gullies with "Paragon" joints, and also of intercepting traps, with the clearing-arms fitted with screw plugs, "Lever" air-tight brass stoppers, etc. The "Lever" stopper can be opened from the surface of the ground by means of a chain attached to the lever of the stopper.

The North of England School Furnishing Company (Darlington) have sent us their new catalogue of school furniture, gymnastic apparatus, chairs, and stools, Wilks's patent "Climax" folding partitions, technical and art school fittings, church seating and pulpits, library and office furniture, etc. The catalogue contains 140 pages, and is well bound and fully illustrated. Architects will find it a very useful reference book.

Messrs. Previté & Co. send us a pamphlet entitled "Trinidad Lake Asphalt," giving particulars concerning the concession for working the pitch lake in Trinidad, the average output of which has reached the total of about 150,000 tons per annum. The book also contains useful data relative to the nature, chemical composition, and properties of crude and purified asphalt, together with other information interesting to users of this valuable substance.

Messrs. Edmond Coignet send us an illustrated circular on the Coignet system of armoured concrete construction as applied to mining and similar industries. Among the works illustrated and briefly described are coal-washery bunkers at the Powell Duffryn Colliery, South Wales; coal bunkers at Gennevilliers, Paris; a pit head at Marles, France; coal bunkers at Rainham, Essex; and ore bins at West Hartlepool. These and some other structures not mentioned by name are examples suggesting the suitability of reinforced concrete for various industrial purposes where strength and durability are important factors.

We have received from Messrs. J. C. Fuller & Son, Bow, a pamphlet describing the Fuller Electric Geyser for giving an instantaneous supply of hot water for baths and domestic, trade, and professional purposes. The device seems highly ingenious, and where there is an electric supply it could generally be installed at once without any difficulty. It is necessary, however, to find out whether the water used is "hard" or "soft." In London, for instance, the water is fairly hard, and so its resistance to electric flow is less than the resistance of the water in Manchester or Liverpool, which is very soft and pure. Hence the applied electric pressure has to be less in London than in other towns. When small quantities of water are required, as for a washstand in a bedroom, etc., we think that this geyser will prove most useful. But for those who want a hot bath containing at least 5 cubic ft. of water (32·5 gallons) the expense seems to us to be prohibitive. From tests quoted in the pamphlet, which seem to us to be quite trustworthy, it appears that it would take more than half an hour to get the requisite quantity of hot water, even assuming that no heat was lost in the process. It would also cost at least 8d.

We have received from Messrs. Wm. Geipel & Co., Vulcan Works, S.E., illustrated leaflets and a description of their "economical lamps." The economical "pull-string" type of lamp has two filaments, one of ordinary, and the other of very low candle power. By simply pulling a string either filament is put in circuit. These lamps are of value in bedrooms, passages, etc., as appreciable economies can be effected by their use. They are extensively used in America. The "hylo" long cord lamp is an improved type. The switch has a rotary action when pulled by a flexible chain. The first pull turns the lamp on to its full power, the next reduces it to one candle, and the last turns the light out. Everything is then in exactly the same state as at the start, and so the action can be repeated.

BOOKS RECEIVED.

NORMAN ARCHITECTURE IN CORNWALL. By Edmund H. Sedding, F.R.I.B.A. Pp. 464. (Ward & Co. 7s. 6d.)

BRITISH RAINFALL, 1908. By Hugh Robert Mill. Pp. 304. (Edward Stanford. 10s.)

SHIPPING MARKS ON TIMBER: 1909 Edition. Pp. 98, and maps. (W. Rider & Son. 7s. 6d.)

BARONIAL AND ECCLESIASTICAL ANTIQUITIES OF SCOTLAND. By R. W. Billings. Parts XV. and XVI. (T. N. Foulis, Edinburgh. 1s. each Part.)

THE CONCRETE INSTITUTE: *Transactions;* Vol. I. Part 3. (Offices of the Concrete Institute.)

Correspondence.

REINFORCED CONCRETE.

SIR,—May I ask to whom the credit is due for the invention of reinforced concrete? I was with some friends the other evening and we got talking about the durability of this method of construction, and then as to where it was first used. An American, who was present, gave the credit to New York. If he was correct, it seems strange that there have been —as stated in your current issue—more failures with reinforced concrete in the United States than in any other country. LONDONER.

*** In England reinforced concrete started by the use of iron beams in concrete floors. In America several people followed our example, and long ago began to develop fire-resisting floors on that principle. In France, we believe, reinforced concrete grew out of the flower-pot patent of Monier (1865), the regular Monier system of reinforced concrete following and being gradually developed a few years after. Then came Hennebique and Coignet, and after them the deluge. We do not think any one person can be given the credit for actually inventing reinforced concrete.—ED.

DOMESTIC ENGINEERING.

SIR,—We notice in your esteemed publication of the 4th a letter signed by G. A. Humphreys (page 265), wherein he refers to *Domestic Engineering* as the publication of the National Radiator Company, Ltd. This firm has no interest whatsoever in this paper beyond being advertisers of long standing, and as this statement in your paper may lead to a serious misconception, we would be glad if you will have it corrected.

L. BABBITT,
Publisher and Proprietor,
Domestic Engineering.

General Building News.

ST. PAUL'S CHURCH, TRURO.

It has been decided to build the tower of St. Paul's, Truro. The church was to a large extent remodelled from designs of the late J. D. Sedding. Mr. Edmund Sedding has been appointed architect for the tower.

WESLEYAN CHAPEL, LYNTON.

The foundation-stones were recently laid at Lynton of a new Wesleyan Methodist Chapel. The building will have seating accommodation for 300 worshippers. The cost, including site, will be about 3,200*l.*, and it is intended to also provide class and school rooms. The scheme has been planned by Messrs. La Trobe & Weston, Bristol, the contract, amounting to 2,000*l.*, having been secured by Messrs. Bovey & Son, Torquay.

SCHOOL ENLARGEMENT, BOLLINGTON CROSS.

The Bollington Cross Church schools have been enlarged and improved, at a cost of about 2,000*l.* The work was carried out by Mr. W. T. Beard, and Mr. Oakley, architect, of Manchester, was responsible for the plans.

SUNDAY-SCHOOL SCHEME, NODDFA.

With the object of modernising the Sunday-school in its methods and organisation, the members of the Baptist church at Noddfa, Treorky, have a scheme on hand, involving an expenditure of over 6,000*l.* Their new building, Beulah, which has just been opened, forms a part of that scheme, and has cost 1,450*l.* The plans were drawn by Mr. T. D. Thomas (of the firm of Messrs. W. D. Morgan, Pentre), and the contractor was Mr. Gwynne Edwards, of Treorky.

GRAMMAR SCHOOL FOR GIRLS, HANDSWORTH.

The Governors of King Edward's Foundation have undertaken the erection of a new grammar school for girls at Handsworth, and a beginning has now been made with the work of construction. The school is being erected on a site in Rosehill-road, and will cost a sum of 36,000*l.*, exclusive of the outlay necessary for furnishing. Accommodation will be provided for 450 girls. The building will be constructed of thin brown "Black Country" bricks and white Hollington stone. It will comprise two floors and a basement. In the centre will be the assembly hall, 100 ft. long, 44 ft. wide, and 42 ft. high. Corridors will be constructed throughout the school on both floors, so that each classroom can be reached without passing through any other room or even entering the assembly hall. On the upper floor the assembly hall will be overlooked by windows from the corridors, and it will be possible to utilise these as galleries for spectators on the occasion of prize givings and other gatherings. A principal feature of the construction of the school is that the classrooms, of which there will be nine on each of the two floors, will all have the same dimensions, 22 ft. 6 in. by 23 ft. 6 in. Main staircases will be placed at each end of the central portion of the building. The south wing will contain on the ground floor the room and office of the head mistress, classrooms, mistresses' common-room, a special room for stationery and the storing of books, and a library. The north end of the building will have on the ground floor a cookery-room, 54 ft. 9 in. by 74 ft., with pantries and larders in addition. A scholars' dining-room, 42 ft. by 75 ft. 6 in., as well as a caretaker's house, will also be comprised in this part of the building. The classrooms on the upper floor include a small one additional to the other nine of uniform dimensions. Upstairs the south wing comprises a special room for needlework, and a science-room. Attached to this will be a special lecture-room, and another room, provided for the botany classes, will have a small conservatory adjoining, where the pupils can observe the growth of their plants. The northern end of the first floor will contain two art-rooms and a small room for special classes, while a room called the hospital will be provided for the first-aid treatment of accidents. In regard to the basement advantage has been taken of a decided slope in the ground to the north to place the heating apparatus and coal store at a low level, so that the coal carts can be backed straight in and can deposit their loads beside the boiler. Adjoining the boiler-house will be a large fan-room, and apparatus will be installed to circulate the air throughout the building by means of exhaust fans. Each room in the school will

be separately connected with the special heating and ventilating systems. The basement will also contain the gymnasium, 54 ft. by 23 ft., a cloakroom, with special provision for drying clothes on wet days, lavatories, special cloakroom, and lavatories for the mistresses, and a bicycle-room. In addition there will be a playroom, 120 ft. by 22 ft., from which there will be an exit into the playground. It is intended that a portion of the plot shall be converted into an Alpine garden. The architects of the new school are Messrs. J. A. Chatwin & Son (Architects to the Foundation), and the contractors Messrs. Collins & Godfrey, of Tewkesbury. The estimate of Messrs. Ashwell & Nesbit for the heating and ventilating apparatus has been accepted.

NEW BUILDINGS IN LONDON.

Rebuilding No. 102, Hatton-garden, E.C., for Messrs. John Jaques & Sons, 53, Hatton-garden, E.C.; rebuilding 19-21, Oxford-street, W., Messrs. Rice & Son, builders, 15, Stockwell-road, S.W.; business premises, flats, and houses, corner of Henrietta-street and Wimpole-street, W., Messrs. Elliott, Son, & Boyton, surveyors, 6, Vere-street, W.; shop, showrooms, etc., corner of James-street and Gray-street, W., Messrs. Ford & Walton, builders, 242, High-road, Kilburn, W.; extensive alterations, 500, Oxford-street, W., Messrs. Fred Sage & Co., 58-62, Gray's Inn-road, W.C.; extensive buildings, corner of Rathbone-place and Oxford-street, W., Messrs. Prestige & Co., builders, 149, Grosvenor-road, S.W.; buildings, Bond-street and Brook-street, Mr. C. F. Kearley, builder, 4, Great Marlborough-street, W.; electric theatre and tea-rooms in Oxford-street, Mr. Melville S. Ward, architect, 104, Victoria-street, S.W.

NEW BUILDINGS IN SWANSEA.

The Swansea District Council Plans Committee has approved the plans of the following:—D. J. Evans, Tirdeunaw, eight houses; W. T. Davies, Morriston, one house; Geo. Jeremiah, Loughor, stable and scullery; Evan Thomas, Upper Loughor, one house; Henry Davies, two houses, Dunvant; new chapel, Loughor; Richard Hughes, Llangyfelach, additions; D. Francis, Loughor, one house; — Jenkins, Gowerton, one house; — Pugsley, Gowerton, two houses; F. Simpson, Gowerton, workshop; Methodist chapel, Cwmrhydyceirw. A plan, submitted by Mrs. Martha Richards, for a skating-rink at Gorseinon, has been adjourned, and also a plan submitted by J. Davies, Llangyfelach, for a bungalow; and by John Davies, Pontlliw, for a house, disapproved.

PROPOSED VILLAS, ETC., MARKET RASON.

At a recent meeting of the Market Rason Urban District Council, plans of two semi-detached villas, to be erected by Mrs. Barker, on the Caistor-road, were submitted by Mr. C. E. Kendall, architect, and approved. Mr. Kendall also submitted at the same meeting a plan of the proposed laying out of the new burial-ground.

KINNAIRD HALL, DUNDEE.

A scheme of improvement is being carried out on the Kinnaird Hall. The alterations have been designed by Mr. Leslie Ower, architect.

POST-OFFICE, TAUNTON.

The erection has been begun in this town of a new post-office. The building will be occupied on the ground floor by the public office, which will be 37 ft. long and 30 ft. wide. The remainder of the ground floor will be taken up by the sorting office and rooms for the engineers, postmen, and telegraph messengers. The postmaster's room is to be placed on the first floor, and rooms for the chief clerk and writing staff will also be provided on this floor, the remaining space being occupied by the sorting clerks' retiring-room, telephone test-room, etc. The second floor will be almost wholly taken up by the telegraph instrument-room. In the basement will be placed the power and battery rooms. The building will be warmed by a low-pressure hot-water apparatus, and the lighting will be electric. Internally the walls generally will be faced with glazed brickwork. The front elevation will be of stone up to the height of the first floor window sills, the upper portion to be in red sand-faced brickwork, with stone dressings. The cost, including fittings and furniture, will be about 9,000*l*. Mr. John Rutherford, of H.M. Office of Works, is the architect.

NEW BUILDINGS, ETC., IN YORK.

At a recent meeting of the Streets and Buildings Committee of the Corporation, the following plans were dealt with, viz.:—British Petroleum Company, spirit store, Foss Islands-road, approved; F. Clark, new stables and additions to house, 14, Vine-street, approved; W. E. Jackson, alterations and additions to warehouse, Hallfield-road, approved; G. H. & H. Douglas, two houses, Siward-street, approved; York Race Committee, entrance hall to county enclosure, Knavesmire, disapproved; W. West, four houses, Knavesmire-crescent, approved; W. Walls, eight houses, Westwood-street, approved; E. Relton, six houses, Lower Sutherland-street, approved; A. D. Stuart, alterations, Crown Cottage, Heworth Green, approved; York Central Mission, mission hall, Swinegate, disapproved; J. J. Hunt, Ltd., roof covering, Queen Victoria-street, approved; W. H. Waudby, new shop, Fossgate, approved; C. Reynolds, workshops, 86, Gillygate, disapproved; Mrs. Forth, re-drainage, 32 and 34, New York-terrace, approved; Barclay & Co., reconversion of shop into dwelling-house and shop, 36, Parliament-street, approved.

CO-OPERATIVE PREMISES, PENRHIWCEIBER.

The Cwmbach Co-operative Society have opened new shops at Penrhiwceiber. The buildings have been erected at a cost of 10,000*l*. The heating apparatus, which is on the low-pressure steam system, has been carried out by Messrs. Hampton & Co., Oxford-lane, Cardiff. The architect was Mr. T. Roderick, Aberdare, and the contractors Messrs. D. Davies & Son, Cardiff.

TRADE NEWS.

The Carron Company have just executed an important order for firegrates for the Ameer of Afghanistan's new palace in course of erection at Cabul. These firegrates—twenty-two in number—are fitted with dogs to harmonise, together with heavy canopies of various designs. The designs, which have been approved by the Ameer, are Oriental in style, and on the brasswork, of which the firegrates are almost wholly composed, much hand labour has been involved. A special feature of these firegrates is the unusually large fire, on the asumption that wood will be burned as fuel.

The new Strand Palace Hotel is being fitted with a system of elevator service by Messrs. R. Waygood & Co. There are two main passenger lifts, each capable of carrying a load of 10 cwts., or seven persons, at a speed of 300 ft. per minute. These lifts are specially designed for smooth running at high speed, and with special controlling arrangement so that they can be started and stopped with accuracy at the various levels. One of these lifts is worked by hydraulic power from the high-pressure main of the London Hydraulic Power Company, and the other one by electric power, the latter being arranged with winding gear and special electrical control with car switch in the cage. Special electrical indicators are also fitted on each lift showing the position of each lift at every floor by means of ornamental fitting with electric light. The guides run on round steel runners so as to give the smoothest possible travel. The cages are provided with special safety apparatus to prevent the descent of the cage in case of suspension ropes failing, also safety appliances to guard against over travel in either direction. There are two goods lifts travelling up through the building, one operated by hydraulic power, and capable of carrying loads of 15 and 20 cwts., and one direct-acting platform lift from basement to ground floor. There is a very complete installation of electric service lifts—fifteen in number—serving the various floors and operated by push-button control, with automatic stopping at each end of travel. There are also three small hand-power lifts for carrying wine and papers respectively.

The Auto-Controller & Switch Company's Fluxite soldering paste has now been adopted in the Chatham Royal Dockyards, and after exhaustive tests had been made they have received an order for a large quantity of the flux from the Dockyard.

The Excellence Wood Block Flooring Company are carrying out the oak flooring at the additions to Radley College, Oxford, for which Mr. T. G. Jackson, R.A., is the architect. They are also carrying out the flooring at St. John's College, Battersea, under the supervision of Mr. Rynn Tenison, architect.

The new Golf Club, Irvine, N.B., is being warmed and ventilated by means of Shorland's patent Manchester stoves, with descending smoke flues, supplied by Messrs. E. H. Shorland & Brother, of Manchester, who are also placing their stoves in St. John's School, King's Lynn.

A large chiming clock has just been erected in the parish church at Rangemore, Burton-on-Trent, as a memorial to the late Lord Burton. It was formally started on Saturday, the 4th inst., by Lady Burton. It shows time on four large dials, and is fitted with all the latest improvements, being made to the designs of the late Lord Burton by John Smith & Sons, Midland Clock Works, Derby, who made the Burton Town Hall clock for the late Lord Burton many years ago. The same firm have also just erected a large clock in the parish church at Blackwell, near Alfreton, which chimes the quarters, strikes the hours, and shows time on three large dials. The clock was formally started in the tower on Thursday evening, the 2nd inst.

Stained Glass & Decoration.

TRINITY WESLEYAN CHURCH, REDLAND, BRISTOL.

Five panels have been designed and painted by Mr. W. A. Chase, for Trinity Wesleyan Church, White Ladies-road, Bristol, which is now undergoing alterations, under the supervision of Mr. James Hart, architect. The panels represent five parables—"The Lost Sheep," "The Good Samaritan," "The Lost Piece of Silver," "The Prodigal Son," and "The Sower." They are placed in niches above the Communion-table, and the dimension of each panel is 10 ft. by 2 ft. 7 in.

Appointments.

The Airdrie Town Council have appointed Mr. Hugh Inglis, North British Railway Surveyors' Office, Edinburgh, to be their Surveyor.

Mr. Frederick Chatterton, A.R.I.B.A., has been appointed to the position of Assistant Lecturer in Architecture and Building Construction at the School of Engineering, Giza, Cairo.

Sanitary and Engineering News.

WATER SUPPLY, NORTHAMPTON.

Mr. M. K. North, M.Inst.C.E., Inspector to the Local Government Board, held an inquiry recently at Northampton into the application by the Corporation for sanction to borrow 6,600*l*. for water supply purposes, including a service reservoir at Boughton. The Town Clerk, Mr. Herbert Hankinson, in giving the grounds on which the application had been made, stated that of late there had come forward the necessity of making an additional provision, particularly to increase the pressure and the supply to the high-level district of the town. Owing to special circumstances the Board had sanctioned the acceptance of a tender for the pipes, etc., before sanction was given to the loan. The estimate for the mains was 2,529*l*., and the figure held good at the present moment. The estimate for the covered service reservoir was 4,070*l*., but the actual lowest tender was for 4,365*l*., and that had been accepted. It therefore became necessary to amend the application to the extent of the difference in the amounts, rightly speaking from 6,600*l*. to 6,900*l*. Mr. Tomlinson, Water Engineer, gave a detailed statement as to the plans. There was no opposition, and at the close of the inquiry the Inspector paid a visit to the site.

THE LOWER HUDSON TUNNELS, NEW YORK.

By the opening of the new tunnels constructed beneath the Hudson River by the Hudson and Manhattan Railway a new stage is reached in the development of suburban traffic between New York and outlying districts. The tunnels afford direct connexion between the terminus of the Pennsylvania Railroad in New Jersey and the immense underground station built in New York by the Hudson and Manhattan Railway. At the New York end the tunnels are connected by loop tracks passing under the Hudson Terminal Buildings, while the western end is linked up by a new line to the upper tunnels, which have been in operation for about twelve months. The lower tunnels, giving direct access from Jersey City and Hoboken to the business centre of Manhattan Island, will take much of the traffic hitherto conducted by ferry boats, and the upper tunnels afford convenient means of communication with the shopping, theatre, and hotel districts of New York. The value of the completed scheme is greatly augmented by the facilities arranged for the transference of traffic to and from the systems of the Erie, Pennsylvania, and Lackawanna lines and the Rapid Transit Subway.

Miscellaneous.

CORDWAINERS' HALL, CANNON-STREET.

The demolition of the Cordwainers' Hall has been begun. The hall was built, 1788, by Sylvanus Hall, in Great Distaff-lane, since incorporated in Cannon-street. The south façade, in stone, was designed by Adam. The Company was first incorporated by

Henry IV. in 1410 as the Cordwainers and Cobblers—that is to say, shoemakers and workers in Cordovan leather. A few years ago the ceilings of the lower hall and court-room on the ground floor were decorated with plaster-work in the Adam style, and oval medallions were fixed on the walls beneath the original enriched frieze, under the superintendence of Mr. H. Chatfeild Clarke, Surveyor to the Company. The first hall was built, on the present site in Cordwainers' Ward, in 1440, after a charter had been given to the Guild in 17 Henry VI. A stained-glass window, set up thirteen years ago, commemorates a benefactor, John Came, who in 1782 bequeathed to the Company in trust an estate yielding about 1,100*l.* per annum on behalf of widowed and blind, deaf, and dumb annuitants. The Came urn and tablet was sculptured by Nollekens. John Wild, 1662, bequeathed property at Edmonton (including the Bell Inn) and Winchmore Hill for charitable purposes, and the "reparation of the common hall"; Camden, the antiquary, gave them 16*l.* wherewith to buy a piece of plate.

ROYAL ARTILLERY MEMORIAL, LONDON.

The memorial to their comrades which the regiment will erect in the Mall is being executed by Mr. W. R. Colton, A.R.A. A central group, in bronze, rising to about 30 ft. in height, represents Peace, a winged figure, restraining a charger—symbolical of the Spirit of War. The stone plinth bears a bronze frieze, with a high relief of types of the Royal Horse and Field Artillery; an elliptical platform, with steps, carries a wall, at the end of which are two stone piers, with bronze bas-reliefs of the Mountain and Garrison Artillery. The inscriptions will commemorate those of the regiment who fell in the South African War, 1899-1902.

BIRMINGHAM UNIVERSITY.

The Council have decided to confer, on October 20, the honorary degree of LL.D. upon many distinguished persons in commemoration of the recent opening of the new buildings. Amongst the recipients are Mr. M. P. Fitzmaurice, C.M.G., Chief Engineer to the London County Council, Sir Archibald Geikie, F.R.S., Sir Alexander B. W. Kennedy, F.R.S., Mrs. Henry Sidgwick, Principal of Newnham College, Cambridge, and Professor Silvanus P. Thompson, F.R.S.

BIRMINGHAM MUNICIPAL SCHOOL OF ART.

In connexion with this school, which offers several important prizes in connexion with work in applied art, there is also a day school of architecture, the object of which is to provide architectural students in the Midlands with a thorough training in all the branches of their profession, and to prepare them for the examinations of the Royal Institute of British Architects. The school course will be spread over four or five years. It is intended that the first two years shall be spent at day classes, and that they shall take the place of the first two years of articled pupilage. The latter two or three years will be spent at evening classes, and will run concurrently with articled pupilage. The syllabus is as follows:—First year—Lectures on architectural history, building construction, elementary physics and geometry; demonstrations and practical work in stone-masonry, carpentry, and bricklaying; simple planning, elementary design (doors, roofs, windows, etc.); perspective; drawing and lettering. Second year—Studies in ancient architecture, including measuring; practical work; lectures on the historic styles and on iron and steel construction, physics, etc.; design. Third and fourth years—Mainly design and advanced physics and kindred subjects. It is hoped that third and fourth year students will be able to take some of their science subjects and carry out tests as to the strength of materials, etc., at the Birmingham University, which possesses full machinery and equipment for this purpose. The fee for the day school will be 40 guineas per session; the fee for the evening school will be 10 guineas per session. It is anticipated that students who follow the full course will be exempted from the Intermediate examination of the Royal Institute of British Architects.

AN ANTHRACITE HEATING STOVE.

The Carron Company send us an illustration and description of their "Alpha" stove, specially constructed for burning anthracite coal or coke. The fire-chamber is brick lined and fitted with movable bottom grates operated by outside handles, thus removing all ash or dust into the ashpan at the foot of the stove. All joints are air-tight to insure perfect combustion, which is regulated by the ventilator in the ashpan front. The fire door is fitted with a mica front and nickel-plated handle. There is a hinged ashpit door and nozzle at the back.

WORKMEN'S DWELLINGS, MERTHYR.

In the House of Commons, on September 2, Mr. Keir Hardie asked the Prime Minister whether his attention has been drawn to the action of the Proprietors of the Wingfield and Mackintosh estate, Abercanaid, Merthyr, who have refused to sell or lease land to the Merthyr Borough Council for the erection of workmen's dwellings, on the plea that the housing scheme of the Council does not seem to be of any advantage to the estate; and whether it is intended, by legislation or otherwise, to take from landowners the power to withhold land when required for houses or other public uses? The President of the Local Government Board (Mr. Burns) replied:—The Prime Minister has asked me to reply to this question. The Town Council have sent me a copy of a letter which they have received from the solicitors to the owners of the estate referred to, and which is to the effect stated in the question. Local authorities are already empowered by sect. 57 of the Housing of the Working Classes Act, 1890, to apply to the Local Government Board to enable them to purchase land compulsorily for the purpose of providing houses for the working classes, and, I may add, that under the Housing, Town Planning, etc., Bill, now before Parliament, the procedure in relation to this matter is proposed to be considerably simplified and improved.

PORT SAID AND SUEZ.

Plans have been drawn up for the complete drainage of Port Said, but the work will hardly be taken in hand before the end of the year. ——A new railway-station has been opened on Navy House Quay, on land leased to the Egyptian Government by the British Admiralty. By the use of this station passengers arriving or departing avoid the necessity of passing through the town, and are thereby saved considerable trouble with their luggage.——The work of building a British Consulate in a central part of Port Said has been commenced.——The Suez Canal Company have under consideration the erection of a block of villas on the seashore at Port Said for the use of their employees, and the tenants can become proprietors on the instalment system. The scheme was needed, as the community suffers from want of house room, as well as from high rents, the price of an unfurnished flat of five or six rooms varying from 5*l.* to 7*l.* per month, whilst larger flats cost from 8*l.* to 10*l.* per month.——A new quay wall has recently been constructed in the south basin of the Suez (Port Ibrahim) docks. It is between 500 ft. and 600 ft. long, and is almost entirely built of 18-ton blocks of Portland cement concrete, resting on rubble foundations laid on the dredged sea-bed. A large area behind the new wall was reclaimed by depositing a considerable quantity of sand, and afterwards paving with volcanic slabs.——A fine new post-office is at present in course of construction at Port Tewfik, and when completed the business of the head office in Suez Town will be transferred thither.——Both Suez Town and Port Tewfik are now lighted throughout by electricity, the wires being partly aerial and partly underground.——The waterworks at Suez are situate close to the sweet water canal about half a mile out of the town. Three large water towers and new reservoirs are in course of construction.——The British firm who have for some time past worked the old stone quarries situated at Ataka, which is just across Suez Bay, have a large contract with the Canal Company for the construction of the quay walls of the new basin at Port Said, and also for the new breakwater at that port. The average output of stone per month is 1,800 tons, and this is conveyed from Ataka to Port Said through the canal by several large steam barges owned by the firm. The average number of men employed, including skilled labour, is 420.

THE BRITISH ASSOCIATION.

In a paper on "Excavations on Neolithic Sites in North Greece," Messrs. A. J. B. Wace, M. S. Thompson, and T. E. Peet stated that they had examined in the early summer of 1909 two new sites, both full of interest, interpreting their excavations at Zerelia last year, and raising fresh problems for future excavations to solve. At Lianokladhi there were three clearly marked strata. The lowest (I.) was a stratum of finely-made and well-painted red on white neolithic pottery patterns. Shapes differed from Chaeronea and Zerelia, and so were probably local. With this local ware they found a little imported Thessalian red on white ware. There was also another class of red on white ware that did not seem local. This stratum was about 2·50 metres thick, and the pottery was beginning to degenerate towards the top and end of this stratum. The intermediate stratum (II.) was sharply divided from I., and was marked by fine well-made ware painted thinly all over with black lustrous paint; with it occurred a reddish-yellow ware, unpainted, but of the same fabric and technique. Both classes of pottery were hand-made. The top stratum (III.) was also clearly separated from II., and was marked by an abundance of coarse, hand-made, unpainted ware, red and blackish, often unpolished, and by a peculiar hand-made black on red geometric ware. This was dated to about 1200 B.C., by the appearance with it of "Minyan" grey ware from Orchomenos. To this stratum belonged a three-roomed house, one room of which contained six large pithoi and several complete vases. Very few implements were found, but in the house were discovered two bored stone celts, and some fine flint knives with jagged edges, and saws. Good flint knives also came from the second stratum. Obsidian, which occurred in I. and II., was rare. The authors believed I. and II. to be neolithic, and III. to be of early Bronze Age. The importance of Lianokladhi was that it gave parallels on one hand to Zerelia and Thessaly, and on the other to Orchomenos and the south. At Tzani Maghoula, a little due east of Sophadhes and the classical Kierium, the same thing seemed to have happened as at Zerelia—*i.e.*, a steady degeneration of good pottery to plain, coarse ware. So far four or five settlements of plain ware had been passed through, in which the pottery was better as the depth increased, and black on red Dhimini ware had just been struck, which seemed to overlie red on white ware like the Zerelia type, and closely allied to the third class of red on white from Lianokladhi, which might be local in Western Thessaly. With the red on white ware appeared an entirely new ware, finely-made vases of grey clay, with linear patterns in grey-black. Above the painted ware were some important sherds of the black lustre ware already noted at Lianokladhi, which should give a date. In the top stratum there were some vases like Zerelia VIII., and a grey ware that looked like a local imitation of "Minyan." There were several good bone pins and gouges, and plenty of obsidian, one or two celts, and only one flint knife.—*Times.*

LIGHTNING CONDUCTORS AT ELY CATHEDRAL.

Lightning conductors were first fitted to Ely Cathedral about the year 1859, to the specification of Sir William Snow Harris, F.R.S., advisor on lightning conductors to the Crown, but doubts were entertained as to whether these were still in an efficient condition. Mr. Alfred Hands, F.R.Met.S., was therefore instructed by the Dean and Chapter to make tests and report as to the advisability of adopting more modern methods. Snow Harris's conductors, formed of short copper tubes screwed together, proved to be so defective that it has been found necessary to instal an entirely new system of copper tapes. This comprises two conductors on the western tower, with branches from the flagstaff and four turrets, two from the towers over St. Catherine's Chapel, and four from the eastern or lantern tower, as well as from the nave, choir, transepts, and lady chapel. The system has been arranged so as to be scarcely noticeable, and does not detract from the appearance of the cathedral. The work has been carried out by Messrs. J. W. Gray & Son, of London, under Mr. Hands's direction.

NORTHAMPTON POLYTECHNIC INSTITUTE.

We have received the volume of educational announcements for the session of this Institute; a scheme which appears to include almost every branch of study in technical work and applied art. The building, which was designed by the late Mr. Mountford, is now completely finished and available for the extended work of the Institute.

THE FINANCE BILL AND DEVELOPED LAND.

In the House of Commons on Monday Mr. Harold Cox asked whether land which had been developed by being built upon, under clause 10 of the Finance Bill, meant land upon which buildings had been erected.—Mr. Hobhouse: It does not follow that land upon which buildings have been erected is land "which has been developed by being built upon." The question of some alteration of language is under consideration in connexion with the case of greenhouses, and also with that of land reverting to the condition of undeveloped land.

MANCHESTER BUILDING AND SANITARY TRADES EXHIBITION.

This exhibition will be held at the City Exhibition Hall, Manchester, in March, 1910. As the City Hall is larger than the St. James's Hall, in which the last exhibition of the kind was held in Manchester, advantage will be taken of the space to extend the scope of the exhibition, especially in regard to the sanitary section. All inquiries should be addressed to the manager, Mr. Walter Cawood, 16, John-Dalton-street, Manchester.

MISCELLANEOUS—*Continued on page 300.*

List of Competitions, Contracts, etc.

For some Contracts still open, but not included in this List, see previous issues. Those with an asterisk (*) are advertised in this Number: Competitions, iv.; Contracts, iv. vi. viii. x.; Public Appointments. xviii.; Auction Sales, xxvi.

Certain conditions, beyond those given in the following information, are imposed in some cases, such as: the advertisers do not bind themselves to accept the lowest or any tender; that a fair wages clause shall be observed; that no allowance will be made for tenders; and that deposits are returned on receipt of a bonâ-fide tender unless stated to the contrary.

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

***** It must be understood that the following paragraphs are printed as news, and not as advertisements; and that while every endeavour is made to ensure accuracy, we cannot be responsible for errors that *may* occur.**

Competitions.

SEPTEMBER 28.—**Lyminge.**—SEWAGE DISPOSAL.—The Elham R.D.C. invite schemes and estimates for the disposal of the sewage of Lyminge Parish. Mr. R. Lonergan, Clerk, 11, Cheriton-place, Folkestone.

OCTOBER 1.—**Aberdare.**—HOSPITAL.—The U.D.C. of Aberdare invite competitive designs for a fever hospital for fifty-two patients, including administrative block, outbuildings, etc. Premiums of 100*l.*, 50*l.*, and 25*l.* are offered for the designs placed first, second, and third respectively. An architectural assessor will be appointed on the nomination of the President of the Royal Institute of British Architects, also a medical assessor to act jointly. Particulars, etc., of the competition, together with a plan of the site, may be obtained from Mr. Thomas Phillips, Clerk, Town Hall, Aberdare, on payment of a sum of 3*l.* 3s.

OCTOBER 11.—**Hull.**—TRAINING COLLEGE.—The Hull Education Committee offer premiums of 150*l.*, 100*l.*, and 50*l.* for drawings submitted in competition for a new college. For further particulars see advertisement in our issue of July 24.

NOVEMBER 1.—**Kendal.**—TECHNICAL SCHOOL.—The Corporation of the Borough of Kendal invite architects residing and practising in Westmorland to submit a competitive design, together with a written description and estimate for the erection of a technical school in the said Borough. A premium of 15*l.* is offered for the design considered by the Corporation first in order of merit, and further premiums of 10*l.* and 5*l.* respectively for those which are, in their opinion, second and third in order of merit; such designs, on payment of the promised premiums, shall become the absolute property of the Corporation. Particulars, etc., together with the plan of site, showing levels, etc., may be obtained free, on application to the Borough Surveyor. (Mr. J. E. Bolton, Town Clerk.)

* NOVEMBER 1.—**Preston.**—GRAMMAR SCHOOL.—The Corporation of Preston invite designs for new grammar school in Moor Park-avenue, Preston. Three premiums are offered. See advertisement in this issue for further particulars.

NOVEMBER 30.—**Herne Bay.**—PAVILION ON PIER.—The Herne Bay U.D.C. invite designs for pavilion on pier. Two premiums are offered. For further particulars see advertisement in our issue of August 28.

JANUARY 31. — **Cardiff.** — NATIONAL MUSEUM.—The Council invite competitive designs for the erection of a new National Museum at Cardiff. Premiums of 200*l.*, 150*l.*, and 100*l.* for second, third, and fourth places. Particulars on receipt of a deposit of 2*l.* 2s. from Dr. Wm. Evans Hoyle, Director of the Museums, City Hall, Cardiff. For further particulars see advertisement in our issue of August 28.

* NO DATE. — **Bognor.** — PIER IMPROVEMENTS.—The Bognor Pier Company, Ltd., invite designs or suggestions for improvements on the pier. See advertisement in this issue for further particulars.

* NO DATE. — **Warrington.** — SCHOOL.—The Warrington B.C. Education Committee invite designs for a public Elementary School. See advertisement in this issue for further particulars.

Contracts.

BUILDING.

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

* SEPTEMBER 13. — **Doncaster.** — SCHOOL. — The Governors of the Doncaster Municipal High School for Girls invite tenders for school. See advertisement in this issue for further particulars.

SEPTEMBER 13. — **Handsworth.** — BRIDGE RECONSTRUCTION.—The West Riding C.C. invite tenders for the partial reconstruction of Woodhouse Mill Bridge, carrying the Worksop and Attercliffe main road over the River Rother, in the Urban District of Handsworth. Conditions, etc., may be obtained on deposit of 1*l.* with the West Riding Treasurer, County Hall, Wakefield, at the office of Mr. F. G. Carpenter, West Riding Surveyor, Wakefield, where plans may also be inspected.

SEPTEMBER 14.—**Kinsale.**—COTTAGES, ETC.—The Kinsale R.D.C. invite tenders for building cottages, for fencing plots, and for additions to and repair of existing cottages. Schedules of cottages to be erected and plots to be fenced, and any other particulars, as well as tender forms, can be had on application to Mr. John Murphy, Clerk of Council, Council Office, Kinsale Workhouse.

SEPTEMBER 15.—**Bristol.**—HARBOUR WALL.—For pile foundations and harbour wall at the Liverpool Wharf. Particulars to be obtained of Mr. W. H. Brown, M.S.A., Standard-buildings, Leeds.

SEPTEMBER 15. — **Pontypridd.** — PAVILION.—The Pontypridd Golf Club invite tenders for the erection of a pavilion. Plans and specifications may be seen at office of Mr. Arthur Ll. Thomas, architect and surveyor, Church-street-chambers, Pontypridd.

SEPTEMBER 15.—**Tomintoul.**—SCHOOL ADDITIONS.—Tenders are wanted for (1) additions to the Public School, including a science room, at Tomintoul; (2) cooking and laundry department at St. Michael's, Tomintoul. Plans and specifications may be seen at the North of Scotland and Town and County Bank, Tomintoul, and with Mr. John Wittet, architect, Elgin.

SEPTEMBER 16.—**Bristol.**—Tenders are invited for new warehouse, mill, and bridges at Redcliffe Wharves. Particulars may be obtained of Mr. W. H. Brown, M.S.A., Standard-buildings, Leeds.

SEPTEMBER 16. — **Edinburgh.** — LABORATORY.—The Commissioners of H.M. Works, etc., invite tenders for the erection of laboratory buildings, Royal Botanic Garden, Edinburgh. Drawings, etc., may be seen on application at His Majesty's Office of Works, Parliament-square, Edinburgh, where bills of quantities and forms of tender may be obtained on payment of 1*l.* 1s.

SEPTEMBER 16. — **Pontardawe.** — UNION OFFICES.—The Guardians of the Pontardawe Union invite tenders for the erection of the proposed Union Offices in Holly-street, Pontardawe. Plans may be seen, and specification, form of contract, etc., may be obtained from Mr. Chas. Bevan Jenkins, Clerk to the Guardians, Herbert-chambers, Pontardawe, S.O., Glam., or at the office of the architect, Mr. Arthur M. Leon, Working-street, Cardiff, on deposit of 2*l.*

SEPTEMBER 16. — **Truro.** — WAREHOUSE, ETC. — New warehouse, mills, and river walls, also reconstruction of partly destroyed premises. Particulars can be obtained from Mr. W. H. Brown, M.S.A., Standard-buildings, Leeds.

SEPTEMBER 17.—**Halifax.**—HOUSES.—Tenders are invited for the mason's (labour only), joiner's, plumber's and glazier's, plasterer's and concretor's, and slater's work required in the erection of seven houses at Stump Cross, Halifax. Plans may be seen, and bills of quantities obtained, at the offices of Messrs. Joseph F. Walsh & Graham Nicholas, architects, Harrison-road, Halifax.

SEPTEMBER 17. — **Sands.** — CHAPEL AND SCHOOLS.—Tenders are invited for the erection of a Primitive Methodist Chapel and Schoolrooms at Sands, near High Wycombe. Plans and specifications can be obtained of the architect, Mr. A. W. Nash, Priory-avenue, High Wycombe.

* SEPTEMBER 18. — **Athlone.**—SCHOOL.—Tenders are invited for a schoolhouse and premises in Ballymahon-road, Athlone. See advertisement in this issue for further particulars.

* SEPTEMBER 18. — **Cardiff.** — COUNTY HALL.—The Glamorgan C.C. invite tenders for a County Hall in Cathays Park, Cardiff. See advertisement in this issue for further particulars

SEPTEMBER 18. — **Lightcliffe.** — MOTOR GARAGE AND LODGES.—Tenders are invited for the erection of two lodges and appurtenances, also a motor garage, at Lightcliffe. Plans and specifications will lie for inspection, and bills of quantities may be obtained, at the offices of Messrs. Clement Williams & Sons, architects, Post-office-buildings, Commercial-street, Halifax.

SEPTEMBER 18. — **Philleigh.** — WAIN HOUSE, ETC.—Tenders are invited for the erection of a wain house and alterations at Tolverne Farm, in the Parish of Philleigh. Plans, etc., can be inspected at the Farm House at Tolverne.

SEPTEMBER 21. — **Greenock.** — IMPROVEMENTS. — Greenock (Burgh) School Board invite tenders for the various works required in connexion with the addition and alteration to Greenock Academy, according to plans by Messrs. Boston, Menzies, & Morton, architects, Greenock. Schedule of quantities and form of tender can be obtained on application to Mr. A. F. Niven, Clerk of Board, Burgh School Board Offices, Municipal Buildings, Greenock, on deposit of 1*l.* 1s. for each schedule.

SEPTEMBER 22.—**Bodedern.**—SCHOOL IMPROVEMENTS.—Tenders are invited for certain additions and alterations to the Council School at Bodedern, Anglesey. Plans, etc., may be inspected at the school, and forms of tender will be supplied on application to the Schoolmaster, Bodedern..

SEPTEMBER 22.—**Ilfracombe.**—BUSINESS PREMISES.—Tenders are invited for the erection of business premises, the Promenade, Ilfracombe, for Mr. T. D. Harding. Drawings, etc., may be obtained at the office of Mr. Allen T. Hussell, F.R.I.B.A., Market-square, Ilfracombe.

SEPTEMBER 22.—**Newcastle, Co. Down.**—CHURCH IMPROVEMENTS. — Tenders are invited for enlarging and remodelling the Church of Our Lady of the Immaculate Conception, Newcastle, Co. Down, for Rev. James M'Ilvenny, P.P. Copies of the plans and specification can be obtained from Mr. J. J. M'Donnell, architect, 27, Chichester-street, Belfast.

SEPTEMBER 23.—**Leeds.**—SCHOOL ADDITIONS.—For the erection of boys' and girls' departments at the Kirkstall-road Council School for the Leeds Education Committee. Applications to be made to the Education Department (Architect's Section), Calverley-street, Leeds.

SEPTEMBER 23. — **St. Annes-on-Sea.**—ELEMENTARY SCHOOL.—The Lancashire Education Committee invite tenders for the erection of a new elementary school at St. Annes-on-Sea. The plans may be seen, and bills of quantities obtained, at the office of the County Architect, Mr. Henry Littler, 16, Ribbledale-place, Preston, by payment of a deposit of 2*l.*

SEPTEMBER 23.—**Swansea.**—ELECTRIC POWER STATION.—The Swansea Harbour Trustees invite tenders for the erection of an electric power station on the eastern side of the Prince of Wales Dock Lock. Drawings and specification may be seen, and form of tender obtained, at the office of the Trustees' Engineer, Mr. A. O. Schenk, M.Inst.C.E., Harbour Offices, Swansea.

* SEPTEMBER 23.—**Tunbridge Wells.**—POST-OFFICE EXTENSIONS.—The Commissioners invite tenders for extension of the Tunbridge Wells Post-office. See advertisement in this issue for further particulars.

* SEPTEMBER 27.—**Fermoy.**—SOLDIERS' QUARTERS.—The Secretary of State for War invites tenders for twelve "A" married soldiers' quarters, Fermoy, Ireland. See advertisement in this issue for further particulars.

* OCTOBER 1. — **Porth.** — SCHOOL. — The Rhondda U.D.C. invite tenders for new school at Porth. See advertisement in this issue for further particulars.

* OCTOBER 1.—**Treherbert.**—SCHOOL.—The Rhondda U.D.C. invite tenders for two new departments at school, Treherbert. See advertisement in this issue for further particulars.

* OCTOBER 7. — **Toddington.** — SCHOOL.—The Bedfordshire C.C. invite tenders for new Council School at Toddington. See advertisement in this issue for further particulars.

NO DATE.—**Guernsey.**—STORES AND COAL HOPPERS.—Tenders are invited for the erection of new stores, and also for coal hoppers. Particulars may be obtained from Mr. W. H. Brown, Standard-buildings, Leeds.

NO DATE.—**Kill, Co. Kildare.**—PAROCHIAL HOUSE.—Tenders are invited for the erection of a Parochial House at Kill, Co. Kildare, according to plans and specification, which may be seen at the office of Mr. Francis Bergin, civil engineer and architect, 36, Westmoreland-street, Dublin.

NO DATE.—**Solva.**—WAREHOUSE.—A new warehouse. Further information can be obtained from Mr. W. H. Brown, M.S.A., Standard-buildings, Leeds.

ENGINEERING, IRON, AND STEEL.

SEPTEMBER 13. — **Dublin.** — ELECTRIC METERS.—The Lighting Committee of the Dublin Corporation invite tenders for the supply of 750 meters. Specification, etc., may be inspected at the office of the City Electrical Engineer, Fleet-street, Dublin, and obtained on deposit of 1*l.*

SEPTEMBER 13.—**Manchester.**—BOILERS.—The Manchester Corporation invite tenders for the supply and delivery at Harpurhey Baths of two Lancashire boilers and one economiser of ninety-six pipes, and engine, etc., to same. Specification and further particulars can be obtained at the office of the City Architect, Town Hall, upon payment of 1*l.* 1s.

SEPTEMBER 13. — **Rawmarsh.** — HEATING.—Rawmarsh U.D.C. invite tenders for heating the scarlet fever block at the new Isolation Hospital. Plans and specifications may be seen, and any information obtained, by applying at the office of the architect, Mr. J. Platts, High-street, Rotherham.

SEPTEMBER 16. — **Merthyr Tydfil.** — IRON STAIRCASES.—Tenders are invited for the construction and erection of outside fire-escape iron staircases at the Union Workhouse, Merthyr Tydfil. Plans and specifications may be seen at the office of the architect, Mr. Thomas Roderick, Clifton-street, Aberdare.

SEPTEMBER 16. — **Mitcham.** — IRON BUILDING AND FENCING.—The Croydon R.D.C. invite tenders for supplying and erecting an iron building 100 ft. by 25 ft., and for supplying and erecting about 540 yds. run of galvanised-iron fencing at Homewood-road, Mitcham. Plans and specifications prepared by the Council's Surveyor, Mr. R. M. Chart, F.S.I., can be inspected, and forms of tender obtained, at his office, Katherine-street, Croydon, on deposit of 2*l.* 2s.

SEPTEMBER 16.—**Ormskirk.**—HEATING.—The Guardians invite tenders for the heating of a block of premises at the Ormskirk Workhouse. Plan and specification may be seen at the Workhouse, and any further information may be obtained from Mr. James Dod, architect, D 16, Exchange-buildings, Liverpool.

SEPTEMBER 18. — **Cardiff.** — STEAM RADIATORS.—The Cardiff Guardians invite tenders for provision of steam radiators, etc., at the Cardiff Workhouse, in accordance with specification prepared by Mr. S. W. Allen, M.Inst.M.E., and conditions of contract annexed to the form of tender, to be obtained from Mr. Arthur J. Harris, Clerk, Union Offices, Queen's-chambers, Cardiff.

SEPTEMBER 18.—**Glasgow.**—STEEL WORK.—The Corporation invite offers for the steel work required in connexion with the construction of a parapet on Queen Margaret Bridge. Specifications and forms

ENGINEERING—*continued.*

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

of offer may be had on application at the Office of Public Works, City-chambers, 64, Cochrane-street.

SEPTEMBER 20.—**Monaghan.**—RAILWAY COAL STORE.—The Directors of the Great Northern Railway Company (Ireland) invite tenders for the construction and erection of a coal store at their Monaghan Station, with corrugated-iron roof, sides, etc., and steel framing and wooden roof principals. Drawings and specification may be seen at the office of Mr. W. H. Mills, Engineer in-Chief, Amiens-street Terminus, Dublin, or copies of them at the office of the District Engineer, Belfast, and forms of tender can be obtained at these offices on payment of 1s. each (not returnable).

SEPTEMBER 21.—**Bristol.**—HEATING AND VENTILATING.—The Bristol Education Committee invite tenders for the heating and ventilating of the Council school to be erected at Alexandra Park, Fishponds. General conditions, etc., and the drawings may be inspected, and (on payment of a deposit of 1*l.* 1s.) specification, etc., may be obtained at the office of the architects, Messrs. Rodway & Dening, Gaunt House, Orchard-street, Bristol.

NO DATE.—**Usworth.**—ELECTRIC LIGHTING.—The Great and Little Usworth P.C. invite tenders for the lighting of certain roads in the Parish by electricity. Those desirous of tendering for the work of erection of poles, etc., to send their names to Mr. Jos. R. Elliott, Clerk to the Council, Fern House, New Washington.

MISCELLANEOUS.

SEPTEMBER 13.—**Devizes.**—STEAM ROLLING.—Devizes R.D.C. invite tenders for scarifying and steam rolling in their district. Conditions and specification of the work can be obtained of the Council's Surveyor, Mr. S. W. Saunders, The Wharf, Devizes.

SEPTEMBER 13. — **Hereford.** — DEMOLITION. — The Hereford T.C. invite tenders for the demolition of the remainder of the property now standing on the Bewell-street area. Plan and form of tender may be seen, and other information obtained, upon enquiry at the City Surveyor's Office, Town Hall, Hereford.

SEPTEMBER 16. — **Denton.** — HEATING.—U.D.C. of Denton invite tenders for heating the Town Hall, Denton, by hot water, on the low-pressure system. Specification of work required and any further information may be obtained from Mr. J. B. Cooke, Surveyor to the Council, Town Hall, Denton, on payment of 1*l.* 1s.

SEPTEMBER 21. — **Clifton, York.** — FURNISHING.—Tenders are invited for furnishing two new blocks, each containing 100 beds, at the North Riding Asylum, Clifton, York. For specifications apply to the Clerk and Steward.

SEPTEMBER 25.—**Braintree.**—CAST-IRON PIPES, ETC.—Braintree R.D.C. invite tenders for the supply and delivery at Kelveden (G.E.R.) of about 550 tons of 7-in., 6-in., 5-in., 4-in., and 3-in. cast-iron pipes, well cylinders, specials, and other works. Specification, etc., may be obtained from the engineers, Messrs. Sands & Walker, Milton-chambers, Nottingham, on payment of 3*l.* 3s.

SEPTEMBER 27. — **Chadwell-St.-Mary.** — HOUSE REFUSE REMOVAL.—Orsett R.D.C. invite tenders for the work of collection and removal of all house refuse and the emptying of all cesspools and closets in the Parish of Chadwell-St.-Mary. Further details and particulars can be obtained of Mr. J. Hurst, 100, New-road, Grays, or of Mr. James Beck, Clerk to the Council, 2, Orsett-road, Grays.

OCTOBER 4.—**Kilkenny.**—TELEPHONE INSTALLATION.—Kilkenny Corporation invite tenders for the installation of telephonic communication in Kilkenny City between the Fire Brigade Headquarters, the Waterworks at Radestown, and Military and Police Barracks, etc., in the City. Plans and specification can be inspected at the office of Mr. P. J. Morrissey, Borough Treasurer.

OCTOBER 9.—**Shropshire.**—DREDGING.—Tenders are invited for cleaning, deepening, widening, and diverting a portion of the River Rea, Asterley and Minsterley Brooks. Plans and specifications may be inspected at the office of Messrs. T. Hickman & Son, Pride-hill-chambers, Shrewsbury, or copies may be obtained upon payment of a deposit of 2*l.* 2s.

NO DATE.—**St. Buryan.**—SAND, ETC.—Tenders are invited (1) for the supply of building sand, delivered on the site of St. Buryan new Council School; (2) for the carting of stone, granite stones, and building materials of various descriptions. Apply Messrs. George Miners & Son, builders, Marazion.

PAINTING, etc.

SEPTEMBER 13. — **Macclesfield.** — PAINTING.—The Water Committee invite tenders for painting at the Waterworks, Langley. Specifications may be obtained on application at the office of Mr. Chas. W. Stubbs, Waterworks Engineer, Macclesfield.

SEPTEMBER 13. — **Rothwell Haigh.** — PAINTING.—Guardians of the Hunslet Union invite tenders for certain painting and lime and colour washing required at their Children's Homes at Rothwell Haigh. Forms of tender, etc., may be obtained on application at the office of Mr. Fred W. Mee, Clerk to the Guardians, Union Offices, Hunslet, Leeds.

SEPTEMBER 14. — **Eastby.** — PAINTING.—Bradford Guardians invite tenders for painting the Sanatorium at Eastby, near Skipton, also Union Offices, 22, Manor-row, Bradford. Specifications and forms of tenders may be obtained (on receipt of 1*l.* 1s. deposit) at the Architect's office, 22, Manor-row, Bradford.

SEPTEMBER 14.—**Knaresborough.**—PAINTING.—The Guardians of the Knaresborough Union invite tenders for painting the outside wood and ironwork and inside work at the Workhouse Infirmaries. Specification may be obtained from the Workhouse Master, Knaresborough.

SEPTEMBER 14.—**Sheffield.**—PAINTING.—The Sheffield Guardians invite tenders for painters' and whitewashers' work required at the Union Workhouse and Union Hospital, Fir Vale. A copy of the specifications may be seen, and further particulars obtained, on application to the Workhouse Master and Hospital Steward respectively.

SEPTEMBER 15. — **Carshalton.** — PAINTING. — The Carshalton U.D.C. invite tenders for painting the sewer ventilating columns, direction posts, fences, etc., throughout the district. Particulars may be obtained on application to the Council's Surveyor, Mr. W. Willis Gale, A.M.Inst.C.E., D.C. Office, The Square, Carshalton.

SEPTEMBER 16.—**Whiston.**—PAINTING.—The Prescot Guardians invite tenders for cleaning and painting various sections of the Workhouse Buildings, Whiston. Specifications can be seen at the office of Mr. J. Gandy, architect, Masonic-buildings, St. Helens, or at the office of Mr. T. Whitehouse, Clerk of Works, Workhouse, Whiston, Prescot.

SEPTEMBER 24.—**Derby.**—PAINTING, ETC.—The Visiting Committee of the Derby County Asylum invite tenders for the painting and decorating of three wards, and distempering and limewashing. Specifications may be obtained from Mr. A. McWilliams, Resident Engineer.

ROADS, SANITARY, AND WATER WORKS.

SEPTEMBER 13. — **Belfast.** — EARTHENWARE PIPE SEWER.—The Improvement Committee invite tenders for the construction of about 186 lin. yds. of 24-in. earthenware pipe sewer in Knock-road. Drawings and specification can be seen, and bill of quantities obtained, at the office of the City Surveyor.

SEPTEMBER 13.—**Blackburn.**—STREET WORKS.—The Highway Committee invite tenders for excavating, forming, and paving of the following, viz.:—St. Clement-street and the back roads behind Lynwood-road, May-street, June-street, July-street, and Lambeth-street, within the Borough of Blackburn. Plans and specifications may be seen, and all information obtained, on application at the office of Mr. William Stubbs, A.M.Inst.C.E., Borough and Water Engineer, Municipal Offices, Blackburn.

SEPTEMBER 13.—**Hanley.**—PRIVATE STREET WORKS.—Tenders are invited for the following private street improvement works:—Contract No. 405.—Davis-street. Contract No. 406.—Edward-street. Contract No. 407.—Bedford-street West. Contract No. 408.—Back Davis-street West. Contract No. 409.—Back Lomas-street North. Specifications, etc., may be obtained, and plans inspected, at the office of Mr. Joseph Lobley, Borough Engineer and Surveyor, Town Hall, Hanley.

SEPTEMBER 15. — **Inverkeithing.**—SEWER.—Offers are invited for the laying of about 550 yds. of a 9-in. sewer, with the necessary cutting of rock and soil, etc., at west end of the Burgh. Plans, sections, etc., can be seen at the office of Mr. James C. Sim, architect, 16, High-street, Inverkeithing.

SEPTEMBER 15. — **Paignton.** — WATER MAIN. — The Paignton U.D.C. invite tenders for supplying and laying a 3-in. cast-iron water main, with valves, specials, and contingent works, along and adjoining the Oldway-road in their district. Drawings, etc., can be seen, and bills of quantities obtained, at the office of the Engineer, Mr. Fred. Wm. Vanstone, Palace-chambers, Paignton, upon payment of 1*l.* 1s.

SEPTEMBER 16. — **Greenwich.** — STONE. — The Greenwich B.C. invite tenders for supplying tooled York stone. Specifications, forms of tender, and other particulars can be obtained at the Borough Engineer and Surveyor's Office, Town Hall, Greenwich-road, S.E., during office hours.

SEPTEMBER 16. — **Pendleton.** — ALTERATIONS TO DRAINS.—Tenders are invited for alterations to drains and water-closets to six cottages in Wardleworth-road, near Hope Church, Eccles Old-road, Pendleton. Plans and specification may be seen, and quantities obtained from Mr. H. Lord, architect, 42, Deansgate, Manchester.

SEPTEMBER 16.—**Wallington.**—EARTHENWARE PIPE SEWER.—Croydon R.D.C. invite tenders for the construction of about 3,000 lin. ft. of earthenware pipe sewer, with manholes, etc., in Manor-road, Wallington. Plans and specification may be seen at the office of the Council's Highway Surveyor, Mr. J. S. Killick, A.M.Inst.C.E., Katharine-street, Croydon, and form of tender, with copy of the bill of quantities, obtained on deposit of 2*l.* 2s.

SEPTEMBER 16.—**Wem.**—WATER SUPPLY.—The R.D.C. of Wem invite tenders for the laying down of a new water scheme in the districts of Barkers Green and Aston, in the Parish of Wem Rural. Specifications and plans may be seen at the office of Mr. W. S. Salt, Clerk to the Council, Noble-street, Wem, Salop.

SEPTEMBER 17.—**Barking.**—PRIVATE STREET WORKS.—The U.D.C. of Barking Town invite tenders for the execution of private street works at Bifrons-street (eastern portion), within the Urban District of Barking Town. Plans and sections may be seen, and specification, etc., obtained from Mr. C. F. Dawson, Surveyor to the Council, Public Offices, Barking.

✱ SEPTEMBER 17.—**Barking Town.**—SEWER.—The Barking Town U.D.C. invite tenders for laying patent jointed stoneware pipe sewer and surface-water drain, etc., in Hertford-road. See advertisement in this issue for further particulars.

SEPTEMBER 17.—**Preston.**—STREET WORKS.—The Preston Corporation invite tenders for the works required in levelling, paving, flagging, etc., and making good Maitland-street, from Caroline-street to Acregate-lane. Plan, etc., may be seen, and schedule of quantities and form of tender obtained, at the office of the Borough Surveyor, Town Hall, Preston.

SEPTEMBER 18.—**Burntisland.**—FIRECLAY PIPES.—The T.C. of the Burgh of Burntisland invite tenders from contractors for laying spigot and faucet fireclay pipes in and alongside the Dour Burn at Cullaloe Reservoir. Schedules of measurement may be obtained from Mr. J. A. Waddell, Burgh Surveyor, Burntisland, on payment of a deposit of 1*l.*, accompanied by priced and signed schedules, where plans may also be seen.

✱ SEPTEMBER 20.—**Beckenham.**—ROAD-MAKING.—The Beckenham U.D.C. invite tenders for making-up Shortlands-grove and a new road between Belmont and Hampden roads. See advertisement in this issue for further particulars.

SEPTEMBER 20.—**Shalford.**—SEWERAGE WORKS.—The R.D.C. of Hambledon invite tenders for sewerage works in the Parish of Shalford, near Guildford. Plan and specification can be seen at the office of Mr. Henry Moon, the Surveyor and Engineer, 96, High-street, Godalming, and copies of the bill of quantities and form of tender can there be obtained on deposit of 3*l.* 3s.

SEPTEMBER 20.—**Solihull.**—SEWERAGE.—Solihull R.D.C. invite tenders for carrying out the second section of a scheme for the sewering of parts of the Parish of Solihull. The drawings and specifications may be seen, and form of tender, together with bill of quantities, obtained, on payment of a deposit of 5*l.* 5s., at the office of Mr. A. E. Currall, Engineer to the Council, Solihull, between 10 a.m. and 4 p.m. on and after September 13.

SEPTEMBER 22. — **Bournemouth.** — MAKING-UP.—Bournemouth B.C. invite tenders for making-up Evelyn, Limited, Brassey, Oswald, Elmes, Stanfield, Castle, and Edgehill roads. Full particulars can be obtained of the Borough Engineer, Mr. F. W. Lacey, M.Inst.C.E., Municipal Offices, Bournemouth, where drawings can be seen on deposit of 1*l.* 1s. in respect of each tender.

SEPTEMBER 22. — **Neath.** — WATER SUPPLY.—The Water Works Committee of the Neath R.D.C. invite tenders in connexion with the Neath Valley main pipe conduit (contract No. 7). Drawings may be seen, and copies of the specification, etc., may be obtained, at the offices of the Engineer to the Council, Mr. D. M. Davies, Council Offices, Neath, upon receipt of the sum of 3*l.* 3s. (2*l.* 2s. only of which will be returned). A limited number of complete sets of drawings can be lent to contractors tendering (in order of application) upon the payment of 3*l.* 3s., which will not be returned.

SEPTEMBER 23. — **Evesham.** — PIPE SEWER. — The Evesham T.C. invite tenders for the laying of a 12-in. pipe sewer from Bridge-street to near the outfall works in the Borough, including the provision of pipes, manholes, etc. Specifications, etc., can be seen during office hours at the office of the Borough Surveyor, Town Hall, Evesham, and the Surveyor will, on application, supply any further information.

SEPTEMBER 25. — **Fillongley.** — SEWERAGE. — The Meriden R.D.C. invite tenders for the carrying out of a sewerage scheme for the Parish of Fillongley, in the County of Warwick. Plans, etc., may be seen, and copies of the bill of quantities with form of tender obtained, at the offices of Mr. W. H. Simpson, A.M.Inst.C.E., The Corridor-chambers, Market-place, Leicester, on payment of 3*l.*

SEPTEMBER 27.—**Bacup.**—PAVING.—Bacup Corporation invite tenders for the paving, etc., of Industrial-place, Bacup. Plans may be seen, and specifications and quantities obtained, at the office of Mr. W. H. Elce, A.M.Inst.C.E., Borough Engineer, Bacup, on payment of 1*l.* 1s.

✱ SEPTEMBER 27 — **Wandsworth.** — ROADMAKING.—The Wandsworth B.C. invite tenders for making-up and paving new streets. See advertisement in this issue for further particulars.

SEPTEMBER 28. — **Markyate.** — WATERWORKS.—The Hemel Hempstead R.D.C. invite tenders for the construction of waterworks at Markyate, Hertfordshire. Plans can be seen at the offices of the engineers, Messrs. Elliott & Brown, Burton-buildings, Parliament-street, Nottingham, from whom copies of the specification, bill of quantities, and form of tender can be obtained on deposit of 2*l.* 2s.

✱ SEPTEMBER 28. — **Willesden.** — DRAINAGE.—The Willesden D.C. invite tenders for constructing drainage intercepting sewer. See advertisement in this issue for further particulars.

OCTOBER 5.—**Aldershot.**—MAKING-UP.—The Aldershot Council invite tenders for the making-up of Eland-road. Plans and specifications may be seen, and full particulars obtained, on application to Mr. Fred. C. Uren, A.M.Inst.C.E., Surveyor to the Council, Municipal Buildings, Aldershot.

STONES, MATERIAL, AND STORES.

SEPTEMBER 14. — **Edmonton.** — GRANITE. — The Edmonton U.D.C. invite tenders for the supply of blue Guernsey and Aberdeen granite. Forms of tender and full particulars may be obtained of Mr. G. Eedes Eachus, Engineer to the Council, Town Hall, Edmonton.

SEPTEMBER 14. — **Edmonton.** — STONEWARE PIPES.—The Edmonton U.D.C. invite tenders for the supply of stoneware pipes. Forms of tender and full particulars may be obtained on application to Mr. G. Eedes Eachus, Engineer to the Council, Town Hall, Edmonton.

SEPTEMBER 14. — **Merthyr Tydfil.** — MATERIALS.—The Merthyr Tydfil Corporation invite tenders for the supply of (*a*) ironmongery goods and engine stores, and (*b*) paving stones, etc. Forms of tender may be obtained upon application to the Borough Engineer.

SEPTEMBER 15.—**Carshalton.**—FLINTS AND GRAVEL.—The U.D.C. of Carshalton invite tenders for the supply of 600 yds. of hand-picked surface-weathered land flints, and of 100 yds. of small sandy gravel. Full particulars in each case may be obtained on application to the Council's Surveyor, Mr. W. Willis Gale, A.M.Inst.C.E., D.C. Office, The Square, Carshalton.

SEPTEMBER 16.—**Cuckfield.**—MATERIALS.—The Cuckfield Board of Guardians invite tenders for supplying the Workhouse with bricklayers', carpenters', plumbers', painters', and ironmongers' materials and work as per scheduled prices. Forms of tender can be obtained of Mr. Edward J. Waugh, Clerk, Haywards Heath.

SEPTEMBER 23.—**Romford.**—GRANITE.—The Romford U.D.C. invite tenders for the supply of about 1,300 tons of best blue Guernsey granite. Forms of tender can be obtained on application to either Mr. J. Turvey, the Surveyor, or Mr. Charles T. King, Clerk, at the Council Offices, Romford.

SEPTEMBER 24.—**Brighton.**—GRANITE.—The Brighton B.C. invite tenders for the supply of 600 tons of broken granite. Specification and form of tender may be obtained on application at the office of the Borough Surveyor, at the Town Hall, Brighton.

Public Appointments.

Nature of Appointment.	By whom Advertised.	Salary.	Application to be in
*INSTRUCTOR IN CABINET MAKING	London C.C.	100*l.* per annum	Sept. 18
*INSTRUCTOR IN METALWORK	London C.C.	100*l.* per annum	Sept. 18

Auction Sales.

Nature and Place of Sale.	By whom Offered.	Date of Sale.
*STOCK OF STONE, ETC., OXFORD—On the Premises	Hamlet & Dulake	Sept. 13
*MISCELLANEOUS STOCK, BETHNAL GREEN, E.—On the Premises	William F. Laing	Sept. 15

MISCELLANEOUS—*Continued from page 297.*

THIRD INTERNATIONAL CONGRESS OF SCHOOL HYGIENE, PARIS.

Owing to unforeseen material difficulties, and in order to give its due importance to the Exhibition attached to the Congress, the French Organising Committee have decided to postpone the date of the Congress until the first week of August (2nd to 7th), 1910.

AYR AULD BRIG.

At the annual meeting of the Executive Council of the Burns Clubs Federation at Dunfermline last Saturday, the Chairman, Bailie Houston, reporting on the progress of the preservation works at the Auld Brig o' Ayr, said that what had been carried on during the past twelve months had been eminently satisfactory up to a certain point. The whole of the work had been accomplished with the exception of the restoration of the parapet and the roadway. It had been decided to take in offers for a contract to complete the work. New piers had been constructed without the arches being taken down, the work being done bit by bit. Further operations would proceed at once, and it was almost certain the work would be finished this year.

Patents.

APPLICATIONS PUBLISHED.*

16,777 of 1908.—James Humphreys and William Willis: Means for preventing the entry of draughts, dust, or rain beneath doors.

16,908 of 1908.—Alphonse Theyskens: Means for mounting sliding doors and the like.

19,006 of 1908.—Alfred Charles Burton: Means for preventing rattling of window sashes.

21,359 of 1908.—David John: Means for fixing rain-water pipes and the like.

21,671 of 1908.—Frank Bettridge: Cowls, ventilators, and the like.

23,984 of 1908.—Carl Kusch: Saw and guard or frame therefor.

23,988 of 1908.—John Gustaf Adolf Rhodin: Manufacture of slag cement.

24,584 of 1908.—David Hague: Door lock.

26,521 of 1908.—Langbein-Pfanhauser-Werke Aktiengesellschaft: Process for rust-proof coating iron and steel.

26,706 of 1908.—Charles Buell Bishop: Door closers and checks.

27,885 of 1908.—William Dyce Cay: Reinforcing or strengthening concrete, cement, mortar, and such-like material.

27,944 of 1908.—Charles Wesley Gray and Betram Lawrance Hurst: Metal skeletons for the reinforcement of structures of concrete or artificial stone.

4,099 of 1909.—Edward Arthur Verger: Ventilators.

14,075 of 1909.—John Thenser: Means for securing glass in window sashes and the like.

SOME RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

August 25.—By WILLIAM HOPE (at Wigton).

Wigton, Cumberland.—The Highmoor Estates, 1,126 acres, f. and c.	£37,035

August 26.—By J. HANNAFORD & SON (at Winkleigh).

Winkleigh, Devon.—Smytham Farm and other holdings, 373 a. 3 r. 13 p., f.	5,573

September 2.—HERBERT HOOKEY & Co.

Charlton.—194, Woolwich-rd., (s.), u.t. 61 yrs., g.r. 4*l.* 4s., y.r. 35*l.*	500
337, Woolwich-rd., (s.), u.t. 67 yrs., g.r. 7*l.* 10s., y.r. 40*l.*	400
Milford-on-Sea, Hants. — Shorefield-rd., two cottages, f.	315

* All these applications are in the stage in which opposition to the grant of patents upon them can be made.

By JAMES R. MCDONALD.

Upton Park.—2, 4, and 6, Walton-rd., u.t. 83 yrs., g.r. 6*l.*, w.r. 85*l.* 16s.	£465

By WHITE & SONS (at Dorking).

Coldharbour, Surrey.—Village stores and post office, f.	1,525

Contractions used in these lists.—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; p. for possession; e.r. for estimated rental; w.r. for weekly rental; q.r. for quarterly rental; y.r. for yearly rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; la. for lane; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; av. for avenue; gdns for gardens; yd. for yard; gr. for grove; b.h. beerhouse; p.h. for public-house; o. for offices; s. for shops; ct. for court.

PRICES CURRENT OF MATERIALS.

*** Our aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

BRICKS, &c.

	£ s. d.	
Best Stocks	1 6 6	per 1000 alongside, in river.
Picked Stocks for Facings	2 10 0	,, delivered
Flettons	1 4 6	,, at railway depôt.
Best Fareham Red	3 12 0	,, ,, ,,
Best Red Pressed Ruabon Facing	5 0 0	,, ,, ,,
Best Blue Pressed Staffordshire	3 15 0	,, ,, ,,
Do. Bullnose	4 0 0	,, ,, ,,
Best Stourbridge Fire Bricks	3 14 0	,, ,, ,,
GLAZED BRICKS.		
Best White and Ivory Glazed Stretchers	10 7 6	,, ,, ,,
Headers	9 17 6	,, ,, ,,
Quoins, Bullnose, and Flats	13 17 6	,, ,, ,,
Double Stretchers	15 17 6	,, ,, ,,
Double Headers	12 17 6	,, ,, ,,
One Side and two Ends	16 17 6	,, ,, ,,
Two Sides and one End	17 17 6	,, ,, ,,
Splays and Squints	15 7 6	,, ,, ,,
Best Dipped Salt Glazed Stretchers	10 7 6	,, ,, ,,
Headers	9 17 6	,, ,, ,,
Quoins, Bullnose, and Flats	13 17 6	,, ,, ,,
Double Stretchers	15 17 6	,, ,, ,,
Double Headers	12 17 6	,, ,, ,,
One Side and two Ends	16 17 6	,, ,, ,,
Two Sides and one End	17 17 6	,, ,, ,,
Splays and Squints	15 7 6	,, ,, ,,
Second Quality White and Dipped Salt Glazed	1 5 0	,, less than best.

	s. d.	
Thames and Pit Sand	6 6	per yard, delivered.
Thames Ballast	5 0	,, ,,
Best Portland Cement	28 0	per ton, ,,
Best Ground Blue Lias Lime	19 0	,, ,,

NOTE.—The cement or lime is exclusive of the ordinary charge for sacks.

Grey Stone Lime ..... 11s. 6d. per yard, delivered.
Stourbridge Fireclay in sacks 27s. 0d. per ton at rly. dpt.

STONE.

	s. d.	
BATH STONE—delivered on road waggons, Paddington Depôt	1 6½	per ft. cube.
Do. do. delivered on road waggons, Nine Elms Depôt	1 8½	,, ,,
PORTLAND STONE (20 ft. average)—		
Brown Whitbed, delivered on road waggons, Paddington Depôt, Nine Elms Depôt, or Pimlico Wharf	2 1	,, ,,
White Basebed, delivered on road waggons, Paddington Depôt, Nine Elms Depôt, or Pimlico Wharf	2 2½	,, ,,

STONE (*continued*).

	s. d.	
Ancaster in blocks	1 10	per ft. cube deld. rly. dep.
Beer ,,	1 6	,, ,,
Greenshill ,,	1 10	,, ,,
Darley Dale in blocks	2 4	,, ,,
Red Corsehill ,,	2 2	,, ,,
Closeburn Red Freestone	2 0	,, ,,
Red Mansfield ,,	2 4	,, ,,
YORK STONE—*Robin Hood Quality.*		
Scappled random blocks	2 10	per ft. cube, deld. rly. dep.
6 in. sawn two sides landings to sizes (under 40 ft. super.)	2 3	per ft. super. ,,
6 in. rubbed two sides ditto, ditto	2 6	,, ,,
3 in. sawn two sides slabs (random sizes)	0 11½	,, ,,
2 in. to 2½ in. sawn one side slabs (random sizes)	0 7½	,, ,,
1½ in. to 2 in. ditto, ditto	0 6	,, ,,
HARD YORK—		
Scappled random blocks	3 0	per ft. cube, ,,
6 in. sawn two sides landings to sizes (under 40 ft. super.)	2 8	per ft super. ,,
6 in. rubbed two sides ditto	3 0	,, ,,
3 in. sawn two sides slabs (random sizes)	1 2	,, ,,
2 in. self-faced random flags	0 5	,, ,,

SLATES.

In. In.	£ s. d.	
20×10 best blue Bangor	13 2 6	per 1000 of 1200 at r.d.
20×12 ,, ,,	13 17 6	,, ,,
20×10 first quality ,,	13 0 0	,, ,,
20×12 ,, ,,	13 15 0	,, ,,
16×8 ,, ,,	7 5 0	,, ,,
22×10 best blue Portmadoc	12 12 6	,, ,,
16×8 ,, ,,	6 12 6	,, ,,
20×10 best Eureka unfading green	15 17 6	,, ,,
20×12 ,, ,,	18 7 6	,, ,,
18×10 ,, ,,	13 5 0	,, ,,
16×8 ,, ,,	10 5 0	,, ,,
20×10 permanent green	11 12 6	,, ,,
18×10 ,, ,,	9 12 6	,, ,,
16×8 ,, ,,	6 12 6	,, ,,

TILES.

	s. d.	
Best plain red roofing tiles	42 0	per 1000 at rly. dep.
Hip and Valley tiles	3 7	per doz. ,,
Best Broseley tiles	50 0	per 1000 ,,
Do. Ornamental tiles	52 6	,, ,,
Hip and Valley tiles	4 0	per doz. ,,
Best Ruabon red, brown, or brindled do. (Edwards)	57 6	per 1000 ,,
Do. Ornamental do.	60 0	,, ,,
Hip tiles	4 0	per doz. ,,
Valley tiles	3 0	,, ,,
Best Red or Mottled Staffordshire do. (Peakes)	51 9	per 1000 ,,
Do. Ornamental do.	54 6	,, ,,
Hip tiles	4 1	per doz. ,,
Valley tiles	3 8	,, ,,
Best "Rosemary" brand plain tiles	48 0	per 1000 ,,
Best Ornamental tiles	50 0	,, ,,
Hip tiles	4 0	per doz. ,,
Valley tiles	3 8	,, ,,
Best "Hartshill" brand plain tiles, sand-faced	50 0	per 1000 ,,
Do. pressed	47 6	,, ,,
Do. Ornamental do.	50 0	,, ,,
Hip tiles	4 0	per doz. ,,
Valley tiles	3 6	,, ,,
Staffordshire (Hanley) Reds or Brindled tiles	42 6	per 1000 ,,
Hand-made sand-faced	45 0	,, ,,
Hip tiles	4 0	per doz. ,,
Valley tiles	3 6	,, ,,

WOOD.

BUILDING WOOD.	At per standard. £ s. d.	£ s. d.
Deals: best 3 in. by 11 in. and 4 in. by 9 in. and 11 in	13 10 0	... 15 0 0
Deals: best 3 by 9	13 0 0	... 14 0 0
Battens: best 2½ in. by 7 in. and 8 in., and 3 in. by 7 in. and 8 in.	11 0 0	... 12 0 0
Battens: best 2½ by 6 and 3 by 6	0 10 0	less than 7 in. and 8 in.
Deals: seconds	1 0 0	less than best.
Battens: seconds	0 10 0	,,
2 in. by 4 in. and 2 in. by 6 in.	9 0 0	... 10 0 0
2 in. by 4½ in. and 2 in. by 5 in.	8 10 0	... 9 10 0

WOOD (*continued*).

BUILDING WOOD—(*continued*)—	At per standard. £ s. d.	£ s. d.
Foreign Sawn Boards—		
1 in. and 1¼ in. by 7 in.	0 10 0	more than battens.
¾ in.	1 0 0	"
Fir timber: best middling Danzig or Memel (average specification)	At per load of 50 ft. 4 10 0	... 5 0 0
Seconds	4 0 0	... 4 10 0
Small timber (8 in. to 10 in.)	3 12 6	... 3 15 0
Small timber (6 in. to 8 in.)	3 0 0	... 3 10 0
Swedish balks	2 10 0	... 3 0 0
Pitch-pine timber (30 ft. average)	4 0 0	... 4 15 0

JOINERS' WOOD.	At per standard.	
White Sea: first yellow deals, 3 in. by 11 in.	24 0 0	... 25 0 0
3 in. by 9 in.	22 0 0	... 23 0 0
Battens 2½ in. and 3 in. by 7 in.	16 10 0	... 18 0 0
Second yellow deals, 3 in. by 11 in.	18 10 0	... 20 0 0
3 in. by 9 in.	17 10 0	... 19 0 0
Battens, 2½ in. and 3 in. by 7 in.	13 10 0	... 14 10 0
Third yellow deals, 3 in. by 11 in. and 9 in.	13 10 0	... 15 0 0
Battens, 2½ in. and 3 in. by 7 in.	11 0 0	... 12 0 0
Petersburg: first yellow deals, 3 in. by 11 in.	21 0 0	... 22 10 0
Do. 3 in. by 9 in.	18 0 0	... 19 10 0
Battens	13 10 0	... 15 0 0
Second yellow deals, 3 in. by 11 in.	16 0 0	... 17 0 0
Do. 3 in. by 9 in.	14 10 0	... 16 0 0
Battens	11 0 0	... 12 10 0
Third yellow deals, 3 in. by 11 in.	13 0 0	... 14 0 0
Do. 3 in. by 9 in.	12 10 0	... 14 0 0
Battens	10 0 0	... 11 0 0
White Sea and Petersburg—		
First white deals, 3 in. by 11 in.	14 10 0	... 15 10 0
" " 3 in. by 9 in.	13 10 0	... 14 0 0
Battens	11 0 0	... 12 0 0
Second white deals, 3 in. by 11 in.	13 10 0	... 14 10 0
" " 3 in. by 9 in.	12 10 0	... 13 10 0
Battens	10 0 0	... 11 0 0
Pitch-pine: deals	18 0 0	... 21 0 0
Under 2 in. thick extra	0 10 0	... 1 0 0
Yellow pine—First, regular sizes	44 0 0	upwards.
Oddments	32 0 0	"
Seconds, regular sizes	33 0 0	"
Oddments	28 0 0	"
Kauri Pine—Planks, per ft. cube	0 3 6	... 0 5 0
Danzig and Stettin Oak logs—		
Large, per ft. cube	0 3 0	... 0 3 9
Small " "	0 2 6	... 0 2 6
Wainscot Oak Logs, per ft. cube	0 5 6	... 0 6 0
Dry Wainscot Oak, per ft. sup. as inch	0 0 8½	... 0 0 9½
¾ in. do. do	0 0 7	... —
Dry Mahogany—Honduras, Tabasco, per ft. super. as inch	0 0 9	... 0 1 0
Selected, Figury, per ft. super. as inch	0 1 6	... 0 2 6
Dry Walnut, American, per ft. super. as inch	0 0 10	... 0 1 0
Teak per load	17 0 0	... 22 0 0
American Whitewood Planks, per ft. cube	0 4 0	... 0 5 0
Prepared Flooring, etc.—	Per square.	
1 in. by 7 in. yellow, planed and shot	0 13 6	... 0 17 0
1 in. by 7 in. yellow, planed and matched	0 14 0	... 0 18 0
1¼ in. by 7 in. yellow, planed and matched	0 16 0	... 1 0 0
1 in. by 7 in. white, planed and shot	0 12 0	... 0 14 6
1 in. by 7 in. white, planed and matched	0 12 6	... 0 15 0
1¼ in. by 7 in. white, planed and matched	0 15 0	... 0 16 6
¾ in. by 7 in. yellow matched and beaded or V-jointed brds.	0 11 0	... 0 13 6
1 in. by 7 in. " "	0 14 0	... 0 18 0
¾ in. by 7 in. white " "	0 10 0	... 0 11 6
1 in. by 7 in. " "	0 12 9	... 0 15 0

6 in. at 6d. to 9d. per square less than 7 in.

JOISTS, GIRDERS, &c.

	In London, or delivered Railway Vans, per ton. £ s. d.	£ s. d.
Rolled Steel Joists, ordinary sections	7 0 0	... 7 10 0
Compound Girders, ordinary sections	9 0 0	... 10 0 0
Steel Compound Stanchions	11 0 0	... 12 0 0
Angles, Tees, and Channels, ordinary sections	9 0 0	... 10 0 0
Flitch Plates	9 0 0	... 9 10 0
Cast Iron Columns and Stanchions including ordinary patterns	7 10 0	... 8 10 0

METALS.

IRON—	Per ton, in London. £ s. d.	£ s. d.
Common Bars	8 10 0	... 9 0 0
Staffordshire Crown Bars, good merchant quality	8 15 0	... 9 5 0
Staffordshire "Marked Bars"	10 10 0	... —
Mild Steel Bars	8 15 0	... 9 5 0
Hoop Iron, basis price	9 5 0	... 9 10 0
" " Galvanised	17 0 0	... —
(*And upwards, according to size and gauge.)		
Sheet Iron, Black—		
Ordinary sizes to 20 g.	9 15 0	... —
" " 24 g.	10 15 0	... —
" " 26 g.	12 5 0	... —
Sheet Iron, Galvanised, flat, ordinary quality—		
Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 20 g.	15 0 0	... —
Ordinary sizes to 22 g. and 24 g.	15 10 0	... —
" " 26 g.	18 10 0	... —
Sheet Iron, Galvanised, flat, best quality—		
Ordinary sizes to 20 g.	18 0 0	... —
" " 22 g. and 24 g.	18 10 0	... —
" " 26 g.	20 0 0	... —
Galvanised Corrugated Sheets—		
Ordinary sizes, 6 ft. to 8 ft. 20 g.	14 10 0	... —
" " 22 g. and 24 g.	14 15 0	... —
" " 26 g.	16 5 0	... —

METALS (*continued*).

IRON (*continued*)—	Per ton, in London. £ s. d.	£ s. d.
Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. to 20 g. and thicker	12 0 0	... —
Best Soft Steel Sheets, 22 g. & 24 g.	13 0 0	... —
" " " 26 g.	15 0 0	... —
Cut Nails, 3 in. to 6 in. (Under 3 in., usual trade extras.)	10 10 0	... 11 0 0

LEAD, &c.	Per ton, in London. £ s. d.	
LEAD—Sheet, English, 3lb. and up.	16 2 6	... —
Pipe in coils	16 12 6	... —
Soil pipe	18 12 6	... —
Compo pipe	19 12 6	... —
ZINC—Sheet—		
Vielle Montagne	27 5 0	... —
Silesian	27 0 0	... —
COPPER—		
Strong sheet per lb.	0 1 0	... —
Thin " "	0 1 1	... —
Copper nails "	0 0 10	... —
Copper wire "	0 0 10	... —
BRASS—		
Strong Sheet "	0 0 11	... —
Thin "	0 1 0	... —
TIN—English Ingots "	0 1 5	... —
SOLDER—Plumbers' "	0 0 7	... —
Tinmen's "	0 0 9½	... —
Blowpipe "	0 1 0	... —

ENGLISH SHEET GLASS IN CRATES OF STOCK SIZES.

15 oz. thirds	2½d. per ft. delivered.
" fourths	1½d. " "
21 oz. thirds	3d. " "
" fourths	2½d. " "
26 oz. thirds	4d. " "
" fourths	3d. " "
32 oz. thirds	4½d " "
" fourths	4½d. " "
Flute Sheet, 15 oz	3½d. " "
" 21 oz.	4½d. " "

ENGLISH ROLLED PLATE IN CRATES OF STOCK SIZES.

⅛ Hartley's	2½d. per ft. delivered.
¼ "	2⅝d. " "
⅜ "	2¾d. " "
Figured, Oxford Rolled and "Oceanic" Glass, white	3½d. " "
" " tinted	5d. " "

OILS, &c.		£ s. d.
Raw Linseed Oil in pipes	per gallon	0 2 2
" " ,, in barrels	"	0 2 3
" " ,, in drums	"	0 2 6
Boiled ,, ,, in barrels	"	0 2 6
" " ,, in drums	"	0 2 9
Turpentine in barrels	"	0 3 3
" in drums	"	0 3 5
Genuine Ground English White Lead	per ton	20 10 0
Red Lead, Dry	"	20 0 0
Best Linseed Oil Putty	per cwt.	0 7 0
Stockholm Tar	per barrel	1 12 0

VARNISHES, &c.	Per gallon. £ s. d.
Fine Pale Oak Varnish	0 8 0
Pale Copal Oak	0 10 6
Superfine Pale Elastic Oak	0 12 6
Fine Extra Hard Church Oak	0 10 0
Superfine Hard-drying Oak, for seats of Churches	0 14 6
Fine Elastic Carriage	0 12 0
Superfine Pale Elastic Carriage	0 16 0
Fine Pale Maple	0 10 0
Finest Pale Durable Copal	0 18 0
Extra Pale French Oil	1 1 0
Eggshell Flating Varnish	0 18 0
White Pale Enamel	1 4 0
Extra Pale Paper	0 12 0
Best Japan Gold Size	0 10 6
Best Black Japan	0 16 0
Oak and Mahogany Stain	0 9 0
Brunswick Black	0 8 0
Berlin Black	0 16 0
Knotting	0 10 9
French and Brush Polish	0 10 6

TENDERS.

Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than* 10 *a.m. on Thursday*. [N.B.—We cannot publish Tenders unless authenticated either by the architect or the building owner; and we cannot publish announcements of Tenders accepted unless the amount of the Tender is stated, nor any list in which the lowest Tender is under 100*l.*, unless in some exceptional cases and for special reasons.]

*** Denotes *accepted*. † Denotes *provisionally accepted*.**

ALDERSHOT.—For making up Holly-road, for the Council. Mr. F. C. Uren, A.M.Inst.C.E., Surveyor to the Council:—

A. H. Ball & Co., Ltd	£2,768 2 7	Fulford & Crow	2,633 13 0
A. Wilcox	2,574 13 2	J. C. Trueman	2,519 16 6
W. H. Wheeler & Co., Ltd	2,388 19 0	T. C. Starkey	2,379 0 8
Martin, Wells, & Co., Ltd.	2,106 10 8	G. A. Franks	2,089 6 6
G. Kemp & Co	2,034 0 0	Ripley, Strong, & Co.	2,018 9 8
W. Norris, Hale, Farnham*	1,990 7 6		

ALVESTON.—For the erection of a cottage. Mr. Albert H. Callaway, architect and surveyor, Union-chambers, Stratford-on-Avon. Quantities by architect:—

Fincher & Co.	£385 10	Whateley & Sons	£310
Hirons	351 17	E. T Kennard	298
J. Cox	319 0	Harris & Sons, Stratford-on-Avon*	290
Price & Sons	317 0		

AYLESBURY.—For new stables, stores, sheds, etc. Cambridge-street, for the Urban District Council. Mr. W. H. Taylor, Engineer and Surveyor, Town Hall, Aylesbury. Quantities by Engineer:—

A. H. Frydd	£2,187 0 0
W. Y. Green & Co.	2,143 10 0
J. Moseley	1,925 0 0
Bosworth & Lowe	1,922 15 0
Mayne & Son	1,898 0 0
W. G. Stone	1,830 0 0
R. Jewell & Sons	1,796 15 6
J. Honour & Son	1,749 0 0
E. H. Gibson & Sons	1,747 0 0
R. W. Locke	1,687 0 0
Webster & Cannon, Aylesbury*	1,668 0 0
Crook & Judd	1,647 12 6
W. & D. Wilkins	1,645 0 0

BARTON.—For erecting new premises, High-street, for the Stamford, Spalding, and Boston Banking Co. Mr. Arthur Stamp, architect, Barton-on-Humber:—

Bricklayers, Plasterers, etc.: B. Aston & Sons, Barton*	£417 14 6
Slaters: Dawber, Townsley, Grimsby*	45 2 6
Masons: King & Sons, Barton*	145 0 0
Joiner: J. Stamp, Barton*	349 0 0
Plumber, Glazier, Electrician, Painter, etc: H. Flower, Barton*	117 0 0

BURNOPFIELD.—For erecting four houses, for Mr. John Simpson. Mr. J. J. Eltringham, architect and surveyor, Blackhill:—

A. & R. Davis, Burnopfield, R.S.O., Co. Durham	£764 12 0

DERBY.—For alterations to the Union Workhouse, for the Guardians. Mr. F. C. Coulthurst, architect, 4, Albert-street, Derby:—

J. Young, Wallbrook-road, Derby*	£439 9 0

[Ten tenders received.]

DOVEHOLES (near Buxton).—For a concrete service tank, etc., for Chapel-en-le-Frith Rural District Council. Messrs. Swann & Brady, Engineers, Town Hall, Chapel-en-le-Frith:—

T. Goddard & Son, Dale-road, Dovehoes	£146 3 5

FAREHAM.—For erecting a house for Mr. Charles Cole. Messrs. Hall, Pain, & Goldsmith, architects, 48, West-street, Fareham. Quantities by Mr. C. W. Ball, Whittington-chambers, King's-road, Southsea:—

R. Scammell	£1,581 0 0	E. Willcox	£1,285 0 0
Chance & Sons	1,422 7 0	W. G. Latty	1,250 0 0
C. Wright	1,408 16 4	H. Plummer	1,250 0 0
J Hunt	1,406 0 0	Glover & Son	1,246 0 0
W. T. Dugan	1,378 6 6	T. Draper	1,209 0 0
F. A. Lane	1,338 0 0	A. J. Fry, Fareham*	989 0 0
F. J. Privett	1,305 0 0		
H. Buckett	1,300 0 0		

FELLING.—For erecting a boundary fence and gates and laying on water to the centre of land for allotments, for the Urban District Council. Mr. C. W. Hall, Surveyor Felling:—

Bye, Elsdon-street, Felling*	£79 16 3

HEYWOOD.—For new Primitive Methodist school Messrs. J. D. & S. J. Mould, architects, Walmersley-road, Bury, and 52, Queen Victoria-street, London. Quantities by architects:—

S. Barker	£1,869	F. W. Porter, Bury*	£1,687
J. Twelves	1 860		

LEYLAND.—For Thirlmere water supply works (Contract 1, pipes, etc.), for the Urban District Council. Mr. M. H. Wilkinson, M.Inst.C.E., Surveyor, Public Hall Buildings, Leyland:—

Supplying Pipes, etc.

Stanton Iron Works Co., Ltd., near Nottingham*	£1,081 5 11

Excavating, etc., Laying and Jointing Pipes, etc., Loading and Unloading, etc.

T. Jackman, jun., 65, Union-street, Chorley*	£810 5 0

For Supply and Delivery of Valves, Meters, Cases, and Fittings.

J. Blakeborough & Sons, Woodhouse Works, Brighouse*	£104 9 0

LIVERSEDGE.—For wrought iron fencing and gates, Mark-street improvement, for the Urban District Council. Mr. F. Langley, Engineer and Surveyor, Council Offices Liversedge:—

A. Wood	£121 5 6	S. Clough	£78 0 0
Motley & Green	103 5 0	J. Tordoff & Son	78 0 0
A. Lister	96 10 0	G. F. Hirst	76 10 0
E. W. Proctor	93 0 0	J. Ellwell	76 0 0
Firth Bros.	90 10 0	Bayliss, Jones, & Bayliss	74 0 0
J. S. Hardwick	88 7 8	W. P. Snell	74 0 0
S. Parsons & Co.	82 0 0	G. H. Robinson	72 0 0
Cunliffe & Dean	80 0 0	W. Miller & Sons	68 19 6
Thompson & Walton	79 0 0	F. Ashton, Mirfield*	65 0 0
Hill & Smith	78 6 6		

LONDON.—For the erection of a new Police Section House at Beak-street, W. Mr. J. Dixon Butler, F.R.I.B.A. Surveyor to the Metropolitan Police, New Scotland-Yard S.W. Quantities by Messrs. Thurgood, Son, & Chidgey. 8, Adelphi-terrace, Strand, W.C.:—

Higgs & Hill, Ltd.	£10,740
Ashby & Horner	10,653
Prestige & Co., Ltd.	10,576
Lovatt, Ltd.	10,430
Mowlem & Co., Ltd.	10,425
Leslie & Co., Ltd.	10,295
Patman & Fotheringham	10,271
Appleby & Sons	10,247
F. & H. F. Higgs	10,196
Lole & Co.	10,099
Godson & Sons	10,027
Kilby & Gayford, Ltd.	9,936

LUTON.—For reinforced concrete floors and a circular dome in connexion with the new library, for the Town Council:—

Lewis, Rugg & Co., Westminster, S.W.*	£580

LUTON.—For improvement works in Kenilworth-road, Hampton-road, West Hill-road, etc., for the Town Council:—

G. Powdrill, Luton*	£434 4 5	Kenilworth-road.
	428 2 2	Hampton-road.
	242 15 2	West Hill-road.
	17 19 6	Ivy-road.

MELTON MOWBRAY.—For laying a new pitch-pine floor in the large hall, for the Corn Exchange Co.:—
T. & H. Denman, Melton Mowbray* £70 8

NEWPORT (Isle of Wight).—For foundations for new suction gas-engine to be supplied to waterworks, Carisbrooke, Isle of Wight, for the Corporation. Mr. J. W. Way, Engineer:—

G. F. Quinton	£162	W. F. Williams	£135 0
A. P. Williams	147	H. Scott, Newport*	127 10
R. Couldrey	138		

ORPINGTON.—For painting works to twenty houses in High-street. Mr. St. Pierre Harris, architect, 8, Laurence Pountney-hill, E.C., and Orpington:—

R. Large	£134 0	W. R. Taylor*	£126 10

OSWESTRY.—For sewage disposal works for the Town Council. Mr. G. William Lacey, M.Inst.C.M.E., Borough Engineer and Surveyor, Guildhall, Oswestry:—

O. Wright & Co.	£8,817 8 1
S. Hutton & Co.	8,420 0 0
H. A. Jones	6,800 0 0
G. P. Trentham	6,781 13 11
R. Williams	6,780 10 0
Jowett Bros.	6,768 12 2
R. C. Brebner & Co.	6,317 6 1
L. Woodland	6,185 14 4
A. J. Cottle	5,855 10 8
W. Underwood & Bro.	5,804 19 1
G. Bell & Sons, Ltd.	5,749 0 0
J. Taylor & Son	5,679 11 0
W. Morley & Sons	5,553 4 10
Johnson Bros.	5,529 0 0
A. Hill & Co	5,447 12 0
W. Cunliffe & Sons	5,248 0 0
W. H. Thomas, Oswestry*	5,150 0 0

[Borough Engineer's estimate, £5,637 18s. 1d.]

OSWESTRY.—For alterations and additions to the Round House in the Smithfield, for the Town Council. Mr. G. W. Lacey, C.E., Borough Engineer and Surveyor, Guildhall, Oswestry:—

J. Higgins	£110 4 0	J. C. Vaughan, Roft-street*	£71 17 6
W. Felton	95 10 0		
Jones & Evans	94 6 7		

PLUMSTEAD.—For erecting open-air wards at the Infirmary, for Woolwich Guardians. Messrs. Church, Quick, and Whincop, architects, William-street, Woolwich:—

E. Mills	£1,655 0 0	Gathercole Bros.	£1,355 0 0
G. H. Gunning	1,596 0 0	Batley, Son, & Holness	1,345 10 0
T. W. Moss	1,546 17 6	A. J. Ware	1,343 0 0
E. Proctor & Sons	1,537 0 0	J. W. Jerram	1 341 0 0
H. L. Holloway	1,483 0 0	Multon & Wallis	1,341 0 0
A. S. Douglas	1,480 11 0	H. Kent	1,340 0 0
Stephens & Son	1,419 0 0	Sanford & Co.	1,332 0 9
B. E. Nightingale	1,408 0 0	F. & G. Foster, Sunny Bank, Norwood Junction*	1 224 0 0
W. Harris	1,405 0 0		
Thomas & Edge	1,383 0 0		
W. H. Hyde & Co.	1,361 10 0		

PLYMOUTH.—For alterations and repairs at No. 36, Looe-street, for the Guardians. Mr. F. A. Wiblin, architect, 92, Old Town-street, Plymouth:—
A. G. Huddy, Higher Batter-street, Plymouth £265

RADCLIFFE.—For new United Methodist church in Ainsworth-road. Messrs J. D. & S. J. Mould, architects, Walmersley-road, Bury, and 52, Queen Victoria-street, London. Quantities by architects:—

Blomley & Co.	£2,880	R. & T. Howarth	£2,625
Gibson & George	2,860	F. W. Porter, Bury*	2,527
J. Allen	2,705		

RYDE (Isle of Wight).—For the first part of the St. John's Parish Hall, Oakfield. Mr. George Boughton, architect, Ryde:—

T. & E. W. Jenkins	£697 10	A. E. Hayden	£598 10
J. Newnham	674 10	Wheeler Bros.	597 10
A. P. Williams	670 0	J. Wheeler & Sons, Ryde*	585 0
J. Ball & Son	648 0	Adams & Mitchell	547 18
G. Gallienne	605 0	J. Attrill	516 12
F. H. Holland	600 0		

SAHAM TONEY (Norfolk).—For work in connexion with Saham Toney Hall. Mr. Herbert J. Green, A.R.I.B.A., architect, Norwich and Kings Lynn:—

	Main Estimate.	Extra for Alternatives.
J. Thompson & Co.	£8,968 0 0	£1,154 15 5
G. Riches	8,740 0 0	685 0 0
Cubitt & Gotts	7,806 14 0	988 6 5
J. Youngs & Son	7,297 0 0	950 0 0
R. Shanks	7,198 0 0	856 0 0
J. Cracknell, Peterborough‡	7,168 0 0	796 0 0

‡ Accepted conditionally.

ST. PAUL'S CRAY (Kent).—For additions to the Cray Valley Cottage Hospital. Mr. St. Pierre Harris, architect, 8, Laurence Pountney-hill, E.C., and Orpington:—

R. A. Lowe & Co.	£2,400	T. Knight	£2,209
T. D. Graty	2,377	W. Blay, Ltd.	2,175
T. Rider & Son	2,276	H. Somerford & Son*	2,025

STEVENAGE.—For reservoir works, for the Urban District Council. Messrs. W. R. & W. Phillips, engineers, Luton:—

W. J. Spratt	£2,595 0 0
H. V. Smith & Co.	2,303 4 1
Edwards & Co.	2,298 5 3
Wallace & Inns	2,274 16 7
F. G. Brummell	2,254 17 3
L. Lown & Co.	2,242 14 10
T. J. Davies	2,201 14 4
A. Jewell	2,184 8 0
Wilkinson & Co.	2,159 0 0
R. C. Brebner & Co.	2,120 0 0
Dean & Perkins	2,097 17 6
P. R. Paul	2,097 0 0
Rowell & Sons	2,081 8 6
Shrouder & Matthews	2,062 0 0
W. French	2,056 19 6
G. Bell & Sons, Ltd.	1,893 0 0
A. E. Farr	1,860 0 0
J. Willmott & Sons, Hitchin*	1,830 0 0
Ekins & Co.	1,813 0 0

WEST WINCH.—For erecting a house at West Winch, for Mr. Oakes, Lynn. Messrs. W. Jarvis & Son, architects, Paradise-parade, Lynn. Quantities by architects:—

Cater & Co.	£430 17 0	S. Hampton	£342 8 6
F. & S. Dickerson	375 0 8	Pitcher	338 19 0
J. Medwell	367 10 1	Reeder	335 0 0
Ives & Sons	360 3 1	Hall & Lawson	327 12 1
F. Ashby, Ltd.	360 0 0	Anderson	317 4 0
H. W. Barnes & Co.	344 0 0	W. White, Lynn*	272 18 11

WINTON.—For erecting new elementary schools in the Sherborne-road, for the Education Committee, Bournemouth. Mr. F. W. Lacey, F.R.I.B.A., Architect to the Education Committee, Municipal Buildings, Bournemouth:—
J. & M. Patrick, Wandsworth, S.W.* .. £13,930

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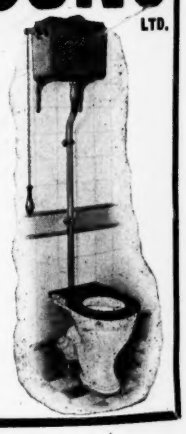

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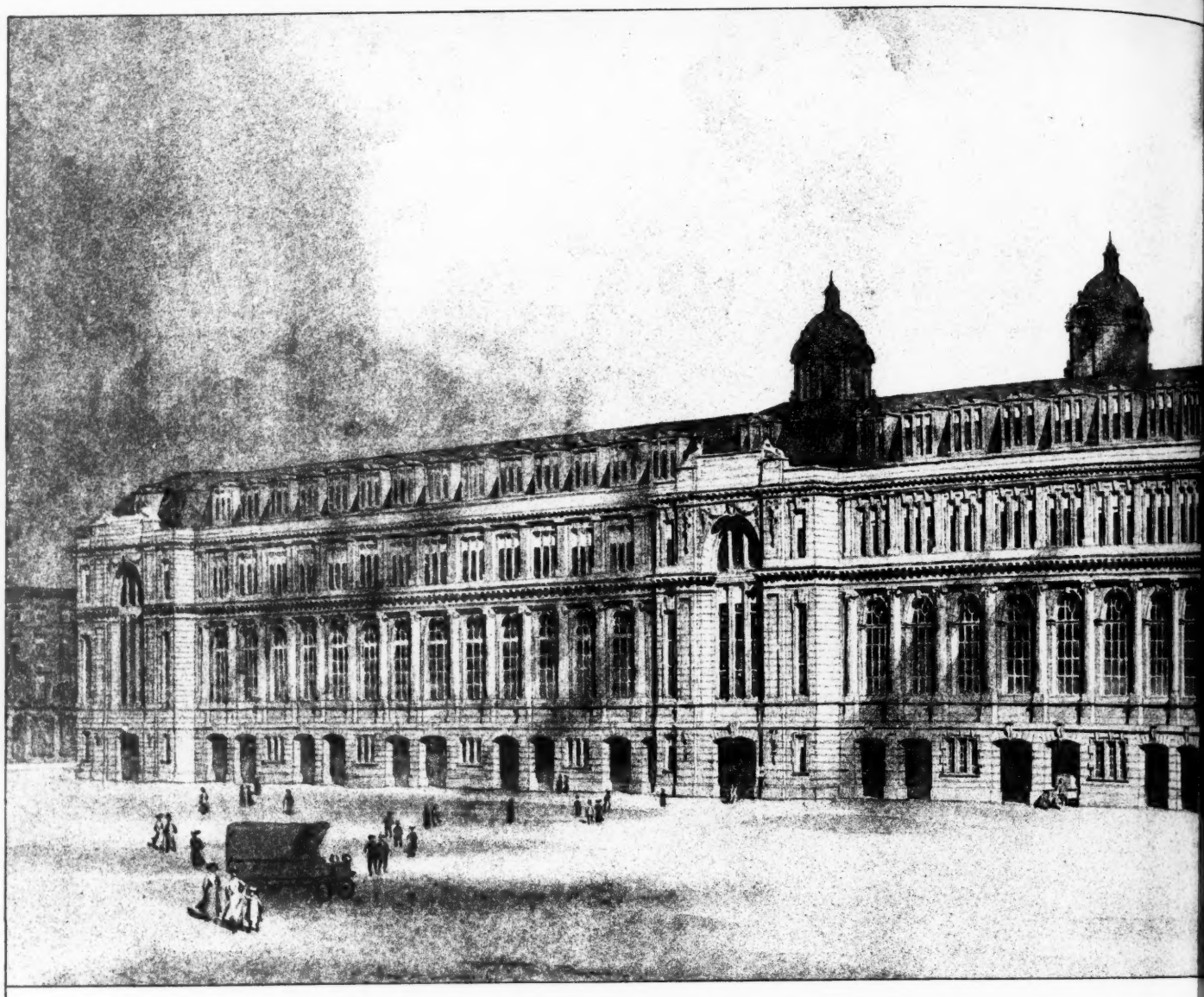
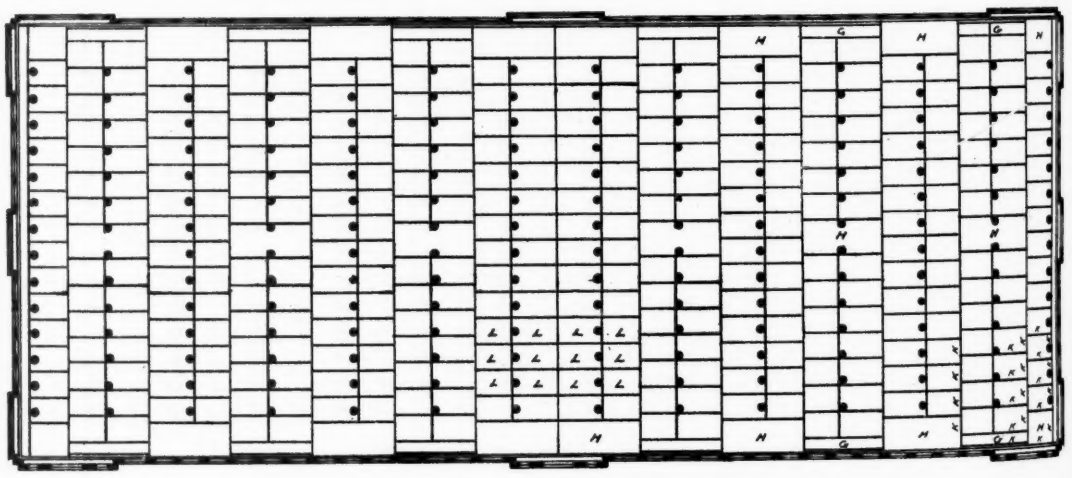
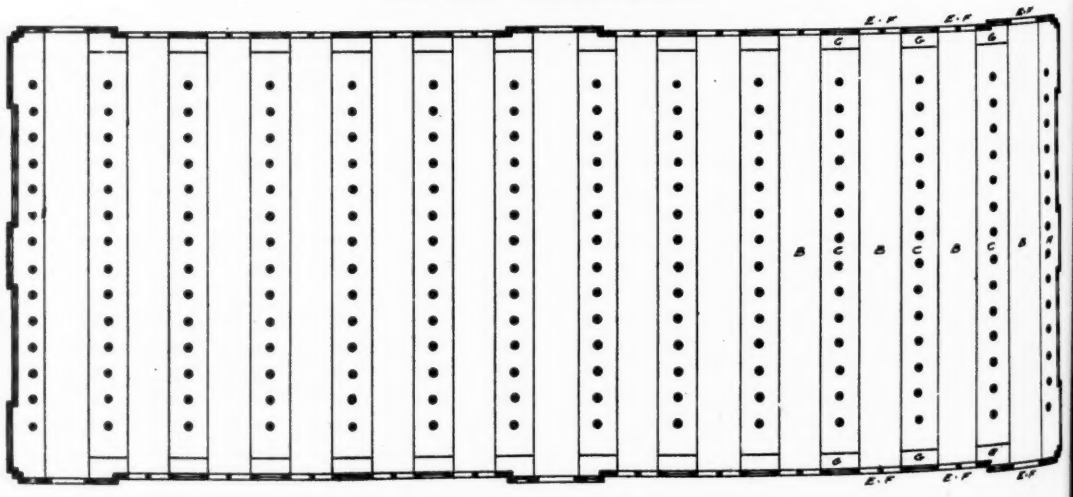


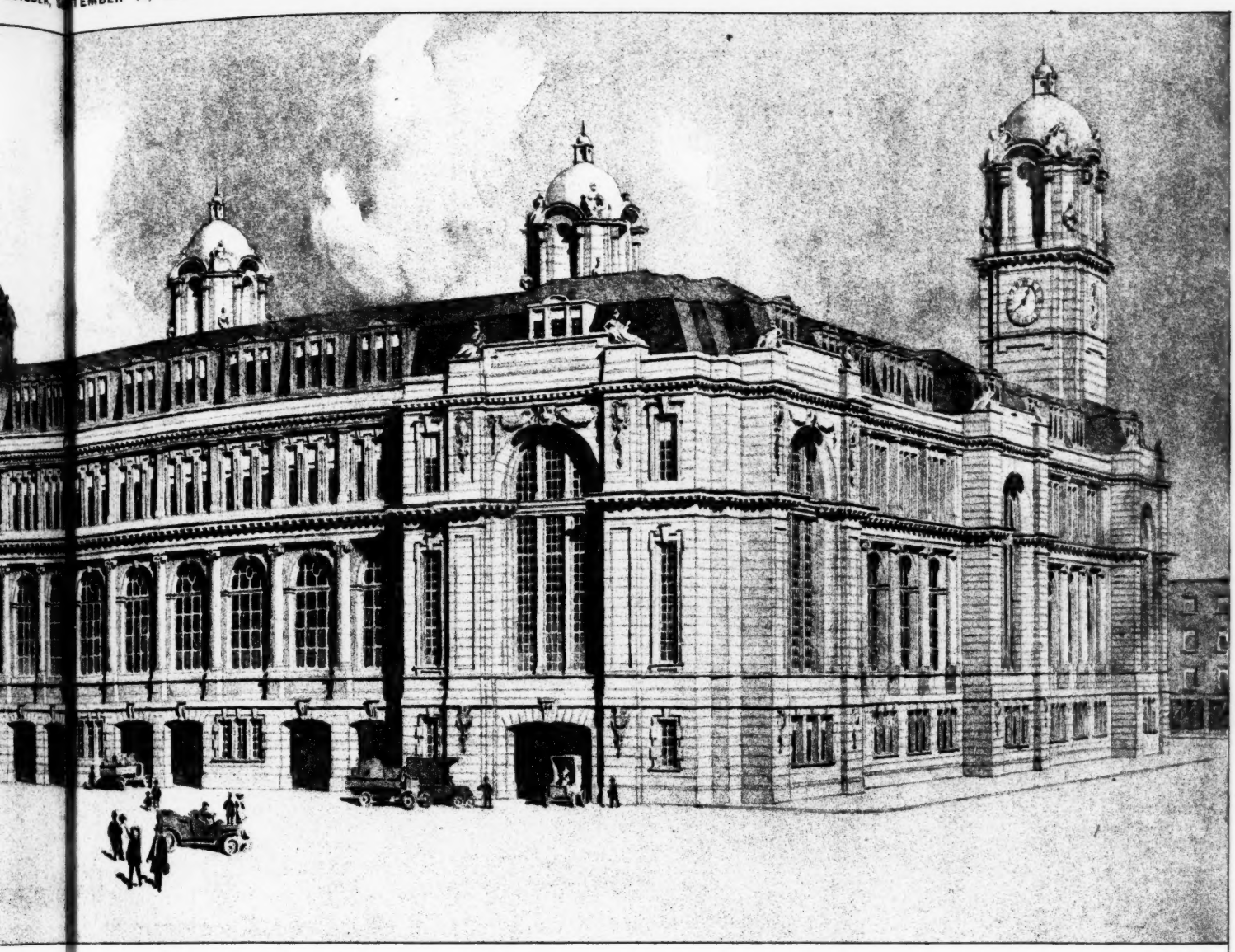


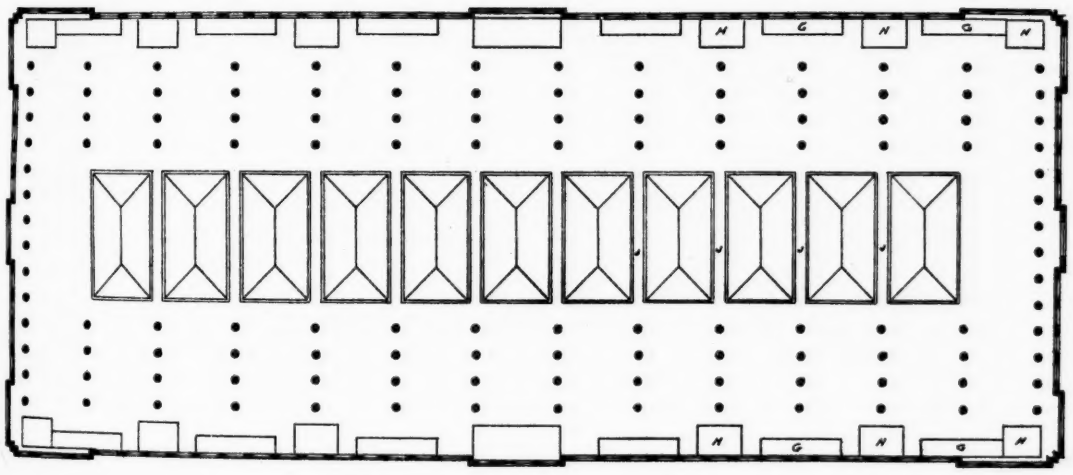
FIRST · FLOOR · PLAN



GROUND · FLOOR · PLAN

PROPOSED LONDON GOODS CLEARING [illegible].—Mr. R. Ste



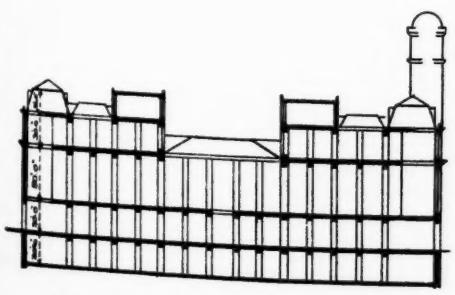


SECOND · FLOOR · PLAN

NOTES

LOWER GROUND FLOOR .... RAILWAY LEVEL
GROUND FLOOR ..... HEAVY GOODS
FIRST FLOOR ..... GOODS SORTING ROOM
SECOND FLOOR ..... PARCELS SORTING ROOM
THIRD FLOOR ..... WORKSHOPS. STORE ROOMS. OFFICES ETC.

A OFFICES ETC.
B ROADWAY 40.0 WIDE
C SPACE FOR WORKING CRANES 35'0 WIDE
E·F ENTRANCES & EXITS FOR MOTOR TROLLEYS
G STAIRS. LIFTS & LAVATORIES
H OPEN WELLS IN FLOORS
J CONNECTING BRIDGES
K TRAVELLING BELTS
L SORTING BAYS



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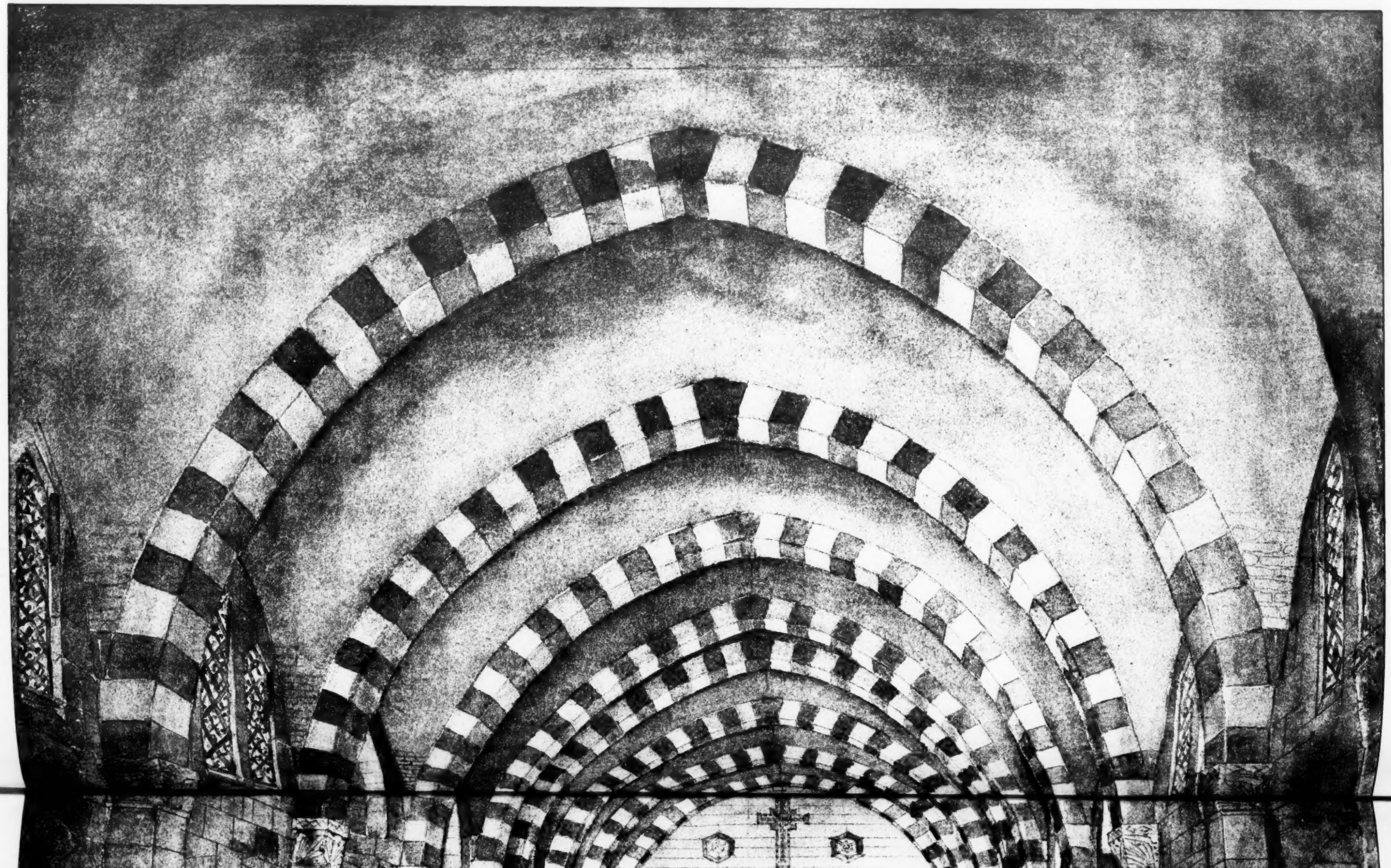

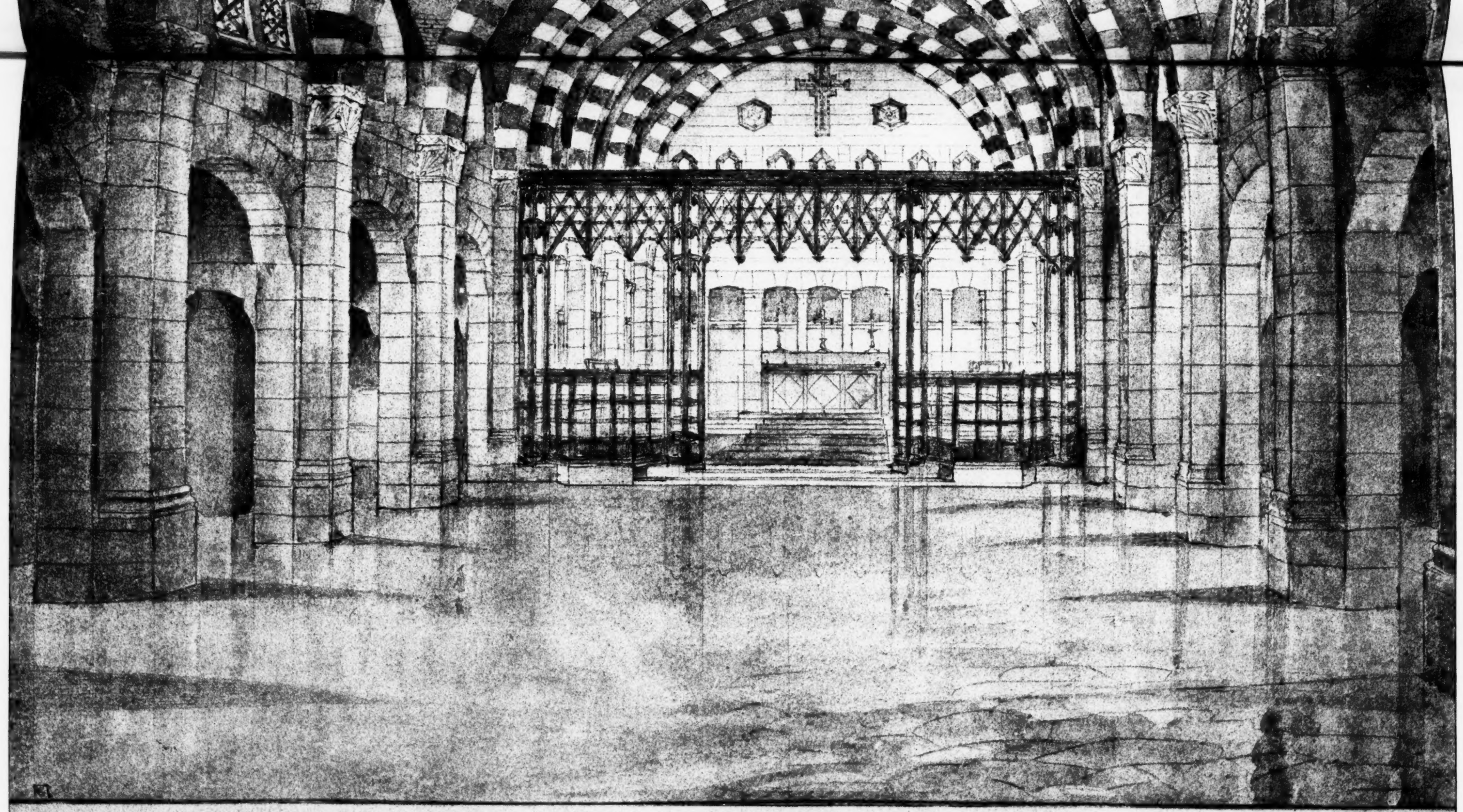

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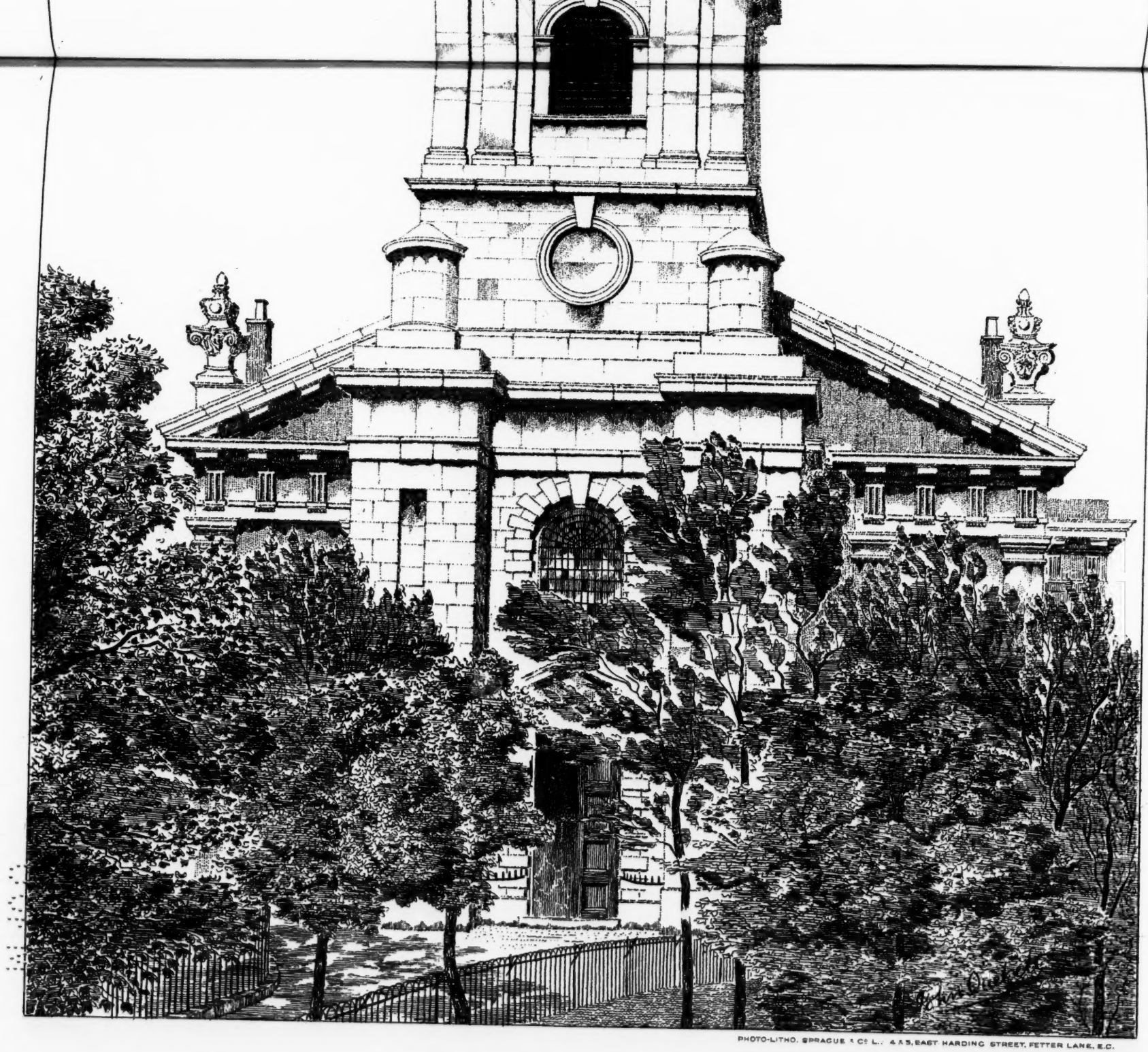

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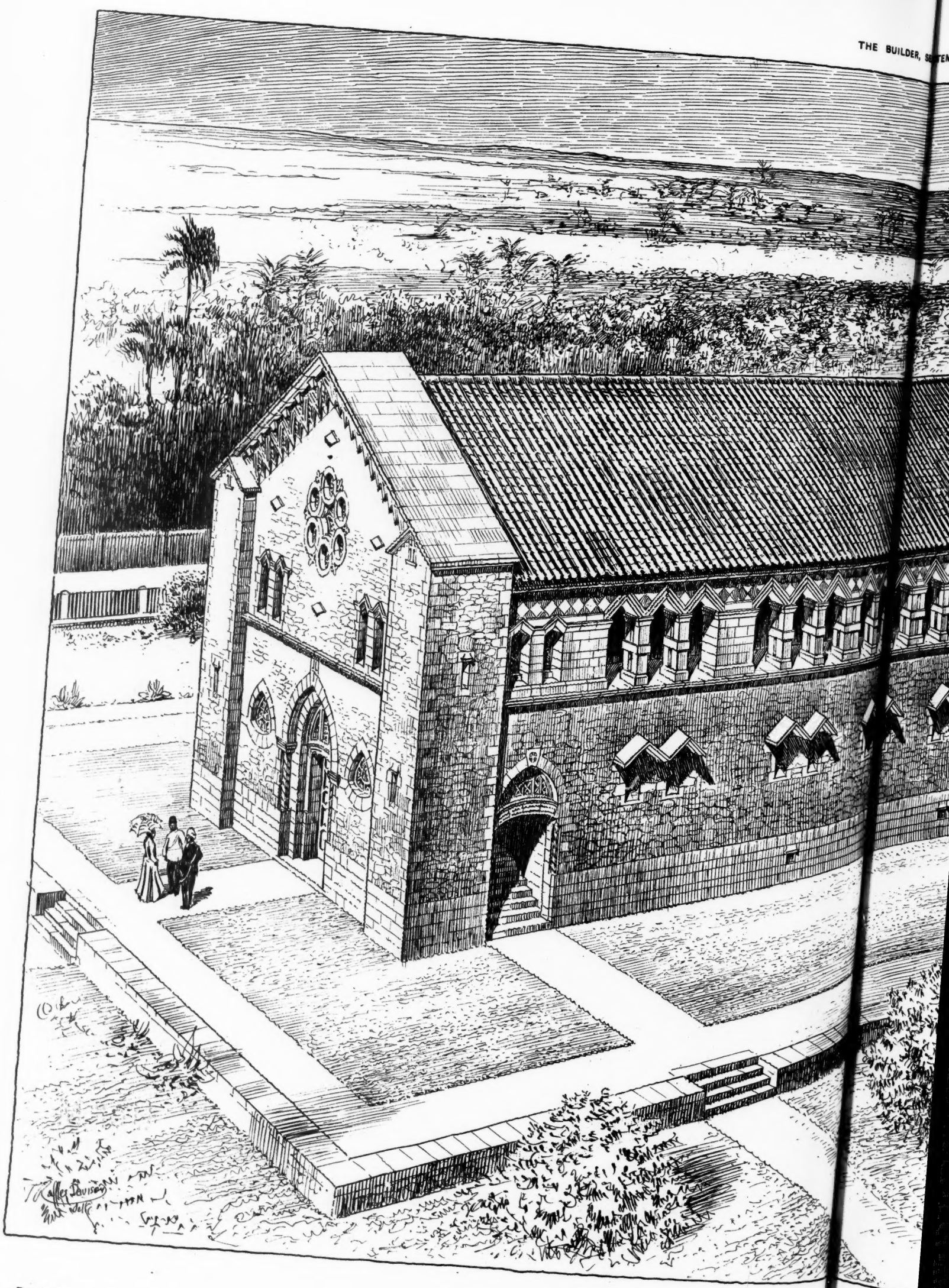

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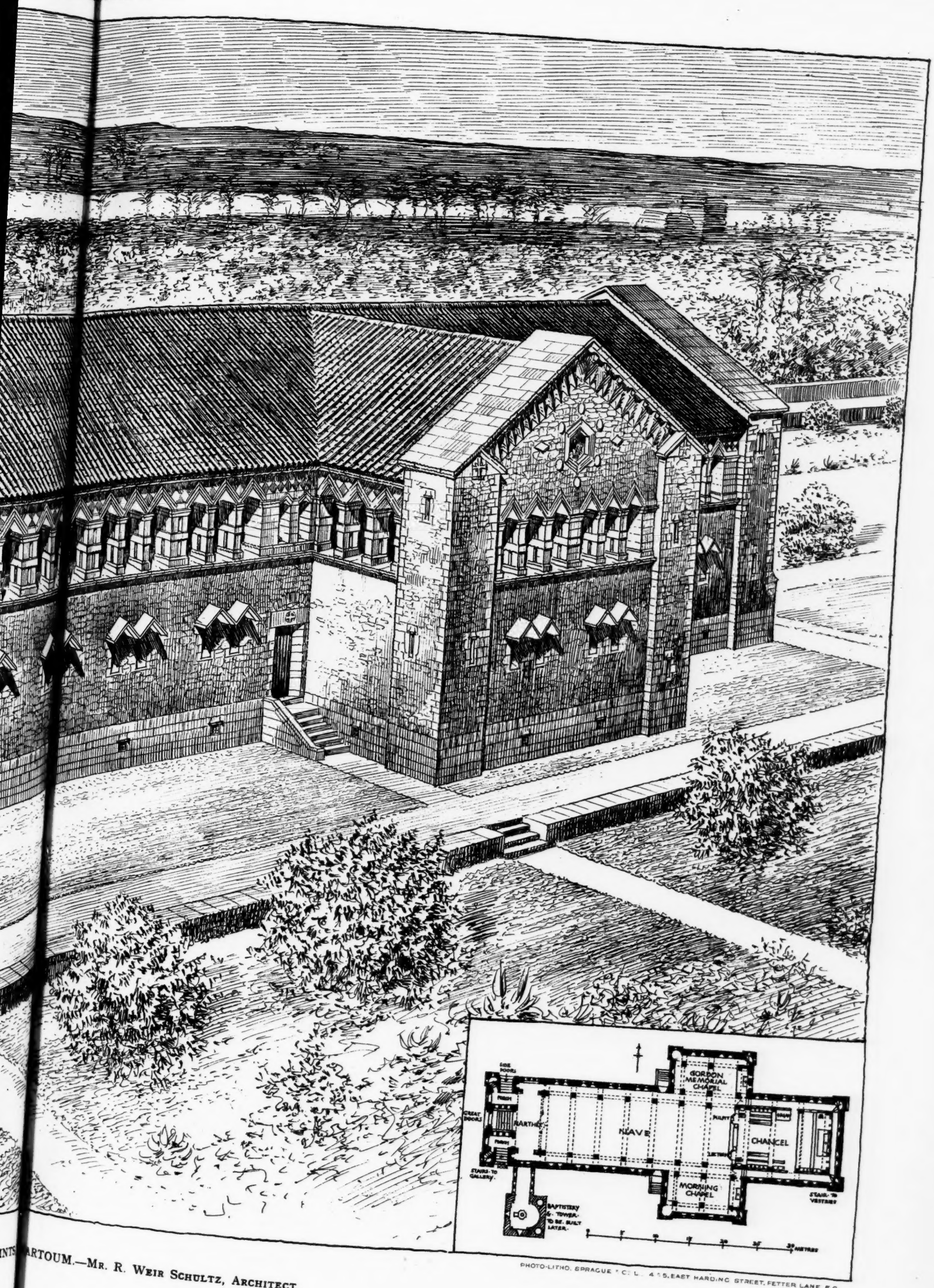

ARTOUM.—MR. R. WEIR SCHULTZ, ARCHITECT.

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